September 2010

Section 9
Environmental Protection Act
R.S.O. 1990

Sample Application Package

for a Certificate of Approval (Air & Noise)

for a Composting Facility

Veuillez noter que ce document n'est disponible qu'en anglais

PIBS 7847e

Protecting our environment. Ontario

Introduction:

This document has been created as an example of a complete Application for Approval for an Air & Noise Certificate of Approval. The company used in this example (Acme Inc.) is used as an illustration and does not exist. Any resemblance to real people, places or events is coincidental and unintended.

This example includes samples of several forms that are required to be completed and submitted when applying for an Air & Noise Certificate of Approval. To obtain a copy of these documents, please refer to the "publications" section of the Ministry of the Environment Internet site at www.ene.gov.on.ca or contact the Environmental Assessment and Approvals Branch by telephone at 1-800-461-6290 (locally at 416-314-8001) or by email at EAABGen@ene.gov.on.ca.

Forms used in this sample application:

PIBS #	Title
4173	Application for Approval (Air & Noise)
4873	Supporting Information Worksheet, Supplement to Application for Approval, EPA s.9
4108	Costs for EPA s.9 Applications, Supplement to Application for Approval
5355	Request under s.20(4) to have the Schedule 3 Standards Apply in Advance of the Date Required by Regulation 419/05
5356	Acoustic Assessment Report Check-List
5357	Emission Summary and Dispersion Modelling Report Checklist

Cette publication hautement spécialisée n'est disponible qu'en anglais en vertu du Règlement 411/97 qui en exempte l'application de la Loi sur les services en français. Pour obtenir de l'aide en français, veuillez communiquer avec le Direction des évaluations et des autorisations environnementales au ministère de l'Environnement au 416-314-8001 (sans frais : 1-800-461-6290).

Tony Bigshot
Owner
Acme Waste Inc.
123 Anywhere Street
Anytown, Ontario
A1B 2C3

March 15, 2010

Director
Ontario Ministry of the Environment
Environmental Assessment and Approvals Branch
2 St. Clair Avenue West
Floor 12A
Toronto, ON M4V 1L5

Dear Sir or Madam:

Re: Application for Consolidated Certificate of Approval (Air & Noise)
ACME Waste Inc., Othertown, Ontario

Please find attached two copies of an Application for a Consolidated Certificate of Approval (Air & Noise) and supporting documentation for the ACME Waste Inc. Othertown Composting Facility, located in Othertown, Ontario (Facility).

The application contains the following:

- Application Summary;
- Completed Application for Approval (Air & Noise) Form
- Attachment 1 Supporting Information Worksheet, Supplement to Application for Approval, EPA s.9 and supporting information
- Attachment 2- Costs for EPA s.9 Applications, Supplement to Application for Approval
- Attachment 3 – Emission Summary and Dispersion Modelling Report
- Attachment 4 – Acoustic Assessment Report

A copy of the Application and supporting documentation has also been sent to the Ministry of the Environment (MOE), Othertown District Office.

Please find enclosed the Application Fee in the amount of $2,900.

Yours truly,

Tony Bigshot

Tony Bigshot
Owner, ACME Waste Inc.

c.c. District Manager, MOE Othertown District Office

SUMMARY

P.E.S. Stacks Inc. (P.E.S. Stacks) was retained by ACME Waste Inc. (ACME) to prepare an application for a Consolidated Certificate of Approval (Air and Noise) (C o f A (Air and Noise)) under Section 9 of the Ontario *Environmental Protection Act* (EPA) for the facility located at 5555 Country Lane in Othertown, Ontario (the Facility).

ACME Waste Inc. is proposing to construct and operate ACME Othertown Composting Facility (ACME) to accommodate the composting of source separated organics (SSO) (food waste and non-recyclable tissue), clean wood and brush (wood), and leaf and yard waste (LY). The Facility plans to operate Monday to Friday, 7:00 to 19:00; Saturday, 7:00 to 14:00. The Facility receiving hours will be Monday to Friday 8:00 to 17:00; Saturday 8:00 to 12:00. The Facility will operate 312 days per year.

The purpose of this application is to apply for a C of A (Air and Noise) for the Acme Othertown facility, with a requested maximum facility production limit of 15,000 tonnes per year of organic material (6,000 tonnes per year SSO; 1,000 tonnes per year wood; 8,000 tonnes per year LY).

This application and supporting documentation were prepared in accordance with all applicable regulatory and Ministry requirements that were in effect at the time of application.

An Emission Summary and Dispersion Modelling (ESDM) Report was prepared in accordance with s.26 of Ontario Regulation 419/05 (O.Reg. 419/05). In addition, guidance in the Ontario Ministry of the Environment (MOE) publication, *"Procedure for Preparing an Emission Summary and Dispersion Modelling Report"*, dated March 2009 (ESDM Procedure Document) was followed, as applicable.

The Facility will be constructed upon receipt of all required approvals in addition to the Certificate of Approval (C of A) (Air &Noise). The North American Industrial Classification (NAICS) code that applies to this Facility is 562210-Waste Treatment and Disposal. However the Facility is not a solid waste combustor or incinerator nor is it used for hazardous waste treatment or disposal, therefore it does not appear in Schedule 4 or 5 of O. Reg 419/05. As such, s.19 of O.Reg. 419/05 applies. The Facility has made a request under O. Reg. 419/05 s.20(4) to have Schedule 3 standards apply in advance of the date specified in the regulation. As such, the assessment of compliance was performed using an approved dispersion model (AERMOD) and the standards listed in Schedule 3 of O.Reg. 419/05, as well as the applicable limits listed in the MOE publication "Summary of O.Reg. 419 Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008 (List of MOE POI Limits).

All of the predicted POI concentrations for contaminants listed in the Emission Summary Table are included in the List of MOE POI Limits, and are below the corresponding limits. The highest maximum POI concentration is 59% of the 24-hour limit for Nitrogen Oxides.

The Acoustic Assessment Report was prepared in accordance with the MOE publication NPC 233 "*Information to be Submitted for Approval of Stationary Sources of Sound*", dated October 1995. Using manufacturer's noise data, noise impacts from the operation of equipment at the facility were predicted at the most sensitive Points of Reception (PORs). Based on the data, presented in the Acoustic Assessment Report and the recommended mitigation controls, noise levels at the identified POR are below the MOE prescribed noise level limits.

Therefore, the operations of equipment at the Facility are predicted to be in compliance with MOE noise limits as defined in NPC-232.

In summary, this Consolidated C of A (Air and Noise) application demonstrates compliance with all applicable regulatory and Ministry requirements under Section 9 of the EPA. P.E.S. Stacks recommends that a Consolidated C of A (Air and Noise) be issued for the Facility.

Ontario

Ministry of the Environment

Application for Approval (Air & Noise)

Ce formulaire est disponible en français

For Office Use Only			
Reference Number	Payment Received $	Date *(y/m/d)*	Initials

General Information and Instructions

General:

Information requested in this form is collected under the authority of the *Environmental Protection Act*, R.S.O. 1990 (EPA) and the *Environmental Bill of Rights*, C. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate applications for approval under Section 9 of the EPA. This form must be completed with respect to all requirements identified in the Guidance Material listed below in order for it to be considered an application for approval. **INCOMPLETE APPLICATIONS WILL BE RETURNED TO THE APPLICANT.** Even if the application is accepted as complete, the Ministry of the Environment may require additional information during the technical review of the application.

Instructions:

1. **Applicants are responsible for ensuring that they complete the most recent application form.** When completing this form, please refer to the following Guidance Material: the "Guide to Applying for Approval (Air & Noise), Section 9, EPA" and the "Guide - Application Costs for Air Emissions, S. 9, EPA". Application forms and supporting documentation are available from the Environmental Assessment and Approvals Branch toll free at 1-800-461-6290 (locally at 416-314-8001), from your local District Office of the Ministry of the Environment, and in the "Publications" section of the Ministry of the Environment website at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir.

2. Questions regarding completion and submission of this application should be directed to the Environmental Assessment and Approvals Branch of the Ministry of the Environment at the address below or to the local District Office which has jurisdiction over the area where the facility is located. A list of these District Offices is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist.

3. A complete application package consists of a completed, signed application form and all required supporting information required by O. Reg. 419/05, identified in this form and the Guidance Material.

4. Three application packages must be submitted to the Ministry of the Environment. Two application packages, the original and a copy must be sent to:

   Ministry of the Environment,
   Director, Environmental Assessment and Approvals Branch,
   2 St. Clair Avenue West, Floor 12A
   Toronto, Ontario, M4V 1L5
   Phone: 416-314-8001
   Toll Free: 1-800-461-6290
   Email: EAABGen@ene.gov.on.ca

   These application packages should include a cheque, money order or credit card payment, in Canadian funds, made payable to the *Ontario Minister of Finance* for the applicable application fee. A third copy of the application package must be sent to the local District Office which has jurisdiction over the area where the facility is located.

5. Information contained in this application form is not considered confidential and will be made available to the public upon request. Information submitted as supporting information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you. For more information, please refer to Section 4.9 of the "Guide to Applying for Approval (Air & Noise), Section 9, EPA".

6. If the Applicant submits with the application a copy of their Master Business License (MBL) obtained from the Ministry of Government Services, the **shaded sections within this form do not need to be completed (provided the information required appears on the face of the MBL).** For additional information on the MBL please refer to Section 4.1 of the "Guide to Applying for Approval (Air & Noise), Section 9, EPA".

1. Applicant Information *(Owner of works/facility)*

Applicant Name *(legal name of individual or organization as evidenced by legal documents)*: ACME Waste Inc.

Business Identification Number: 123456789

Business Name *(the name under which the entity is operating or trading if different from the Applicant Name - also referred to as trade name)*: ACME Waste Inc.

Applicant Type:

- [x] Corporation
- [ ] Individual
- [ ] Partnership
- [ ] Sole Proprietor
- [ ] Federal Government
- [ ] Municipal Government
- [ ] Provincial Government
- [ ] Other *(describe)*:

North American Industry Classification System (NAICS) Code: 562210-Waste Treatment and Disposal

Business Activity Description *(a description of the business endeavour, this may include products sold, services provided or machinery/equipment used, etc.)*: Non-hazardous waste treatment and disposal

2. Applicant Physical Address

Civic Address- Street information *(address that has civic numbering and street information includes street number, name, type and direction)*: 123 Anywhere Street

Unit Identifier *(i.e. suite or apartment number)*:

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory. Not required if Street Information is provided)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number

Lot: | Conc.:

Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan

Part: | Reference Plan:

Municipality/Unorganized Township	County/District	Province/State	Country	Postal Code
Anytown	Prosperous County	Ontario	Canada	A1B 2C3

3. Site Information - *(location where activity/works applied for is to take place)*

Is this an application for a mobile facility? ☐ Yes ☒ No

Site Name: ACME Othertown Composting

MOE District Office: Othertown District

Address Information:

Same as Applicant Physical Address? ☐ Yes ☒ No (If no, please provide site address information below)

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*: 5555 Country Lane

Unit Identifier *(i.e. suite or apartment number)*:

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number

Lot: 15 | Conc.: 3

Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan

Part: SE | Reference Plan: 12R

Non Address Information *(includes any additional information to clarify applicants' physical location)*:

Municipality/Unorganized Township	County/District	Postal Code
Othertown	Somewhere County	B2C 3D4

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing
NAD83	17	10-20m	Topo Map	9999999	9999999

Is the Site located in an area of development control as defined by the Niagara Escarpment Planning & Development Act (NEPDA)?

☐ Yes ***If yes, please attach a copy of the NEPDA permit for proposed activity/work***

☒ No

Is the Site located on the Oak Ridges Moraine Conservation Area as defined by the Oak Ridges Moraine Conservation Plan (ORMCP), a regulation made under the Oak Ridges Moraine Conservation Act (ORMCA)?

☐ Yes ***if yes, please attach proof of Municipal planning approval for the proposed activity/work***

☒ No

Is the Applicant the operating authority?

☒ Yes

☐ No ***If no, please attach the operating authority name, address and phone number***

Is the Applicant the owner of the land (site)?

☒ Yes

☐ No ***If no, please attach the owner's name, address and a signed letter granting consent for the installation and operation of the facilities***

Has this facility and one or more adjacent facilities been deemed to be one property under s.4 of O. Reg. 419/05?

☐ Yes ***If yes, please attach supporting information***

☒ No ****Note: all sources from the adjacent facility must be included in the Emission Summary and Dispersion Modelling Report.***

4. Project Technical Information Contact

Name: Joe Consultant

Company: P.E.S. Stacks Inc.

Address Information:

Same as Applicant Physical Address? ☐ Yes ☒ No (If no, please provide technical information contact address information below)

Civic Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*: 234 Other Street

Unit Identifier *(i.e. suite or apartment number)*: Suite 1

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)*:

Municipality	Postal Station	Province/State	Country	Postal Code
Othertown		Ontario	Canada	A1B 2C3

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
(905)555-2345	(905)555-2399	JoeConsultant@PES.com

5. Project Information

Type of Application:

- [x] New Certificate of Approval for this Facility
  - Did construction of the facility begin after November 30, 2005? [x] Yes [ ] No
  - Does the NAICS Code for the facility fall into Schedule 4 or 5 of O. Reg. 419/05? [ ] Yes [x] No
- [ ] Amendment to current Certificate of Approval
- [ ] Basic Comprehensive Certificate of Approval
- [ ] Consolidated Certificate of Approval

Current Certificate of Approval Number	Current Certificate of Approval Date of Issue (yyyy/mm/dd)
NA	NA

Application Initiated by:

[x] Proponent [ ] Environmental Assessment and Approvals Branch [ ] Provincial Officer Order (attach copy) [ ] Other (specify): _____

List all other environmental approvals/permits applied or received in relation to this **project** under the *Environmental Protection Act*, the *Ontario Water Resources Act*, the *Safe Drinking Water Act*, *Environmental Assessment Act* or any other related legislation. *(Please attach a separate list if more space is required).*

C of A (Waste)	C of A (Sewage Works)

Project Description Summary *(If EBR is applicable, this summary will be used in the EBR posting notice)*

This Application is for a Consolidated Certificate of Approval (Air &Noise) for the ACME Waste Inc. Othertown Composting Facility to be constructed in Othertown, Ontario. This Facility will take organic waste and process it using an aerobic composting process. The expected contaminants emitted from this Facility are products of combustion, particulate, ammonia, Total Reduced Sulfur (TRS) and odour. The equipment in this Application includes: active windrows for leaf and yard waste composting, grinding, shredding and screening equipment, one(1) emergency generator and one (1) biofilter.

Project Name *(Project identifier to be used as a reference in correspondence)*

53469-ACME Composting

Project Schedule

Estimated date for start of construction/installation (yyyy/mm/dd)	Estimated date for start of operation (yyyy/mm/dd)
2010/10/01	2011/05/01

6. O. Reg. 419/05 Requirements

Which of the following sections of O. Reg. 419/05 applies to the facility?

[ ] s.18 (Schedule 1) [ ] s.19 (Schedule 2) [x] s.20 (Schedule 3)

If s.20 of O. Reg. 419/05 applies to the facility, do all new sources of contaminant meet the Good Engineering Practice (GEP) stack height requirements of s.15?

[x] Yes [ ] No

Has the facility been issued a notice or an order under s 7(1), 8(2), 10(2), 11(2), 13(2), 14(4), 17(3), 20(4) or 20(5)?

[ ] Yes **If yes, please attach a copy of the notice, amended notice, revoked notice, order and/or additional supporting information**

[x] No

Has a request for approval for an alteration of a Schedule 3 standard under s. 32 of O. Reg. 419/05 been made for this facility?

[ ] Yes **If yes, please attach a copy of ministry acknowledgement letter (if available) or an overview of the request**

[x] No

Do you exceed any s.30 Upper Risk Thresholds (Schedule 6)?

[ ] Yes [x] No **If yes, please attach additional supporting information**

7. Other Air Approvals for Facility – *Please attach a separate list if more space is required*

Separate list attached? [ ] Yes [ ] No

List all other environmental approvals issued to this facility under the Section 9 of the *Environmental Protection Act.*	

8. *Environmental Assessment Act (EAA)* Requirements

Are the works for which this proposal is made subject to (or exempted from) the requirements of the EAA? ☐ Yes ☒ No

If "Yes," please check one of the following

☐ The works for which this application is made are exempt from the requirements of the EAA under:

☐ Section _____ of Ontario Regulation No. _____ **or**

☐ Declaration/Exemption Order Number _____

If Regulation, Declaration Order or Exemption Order does not refer directly to this facility, state in a covering letter or other document why it does apply to the facility – ***Please provide supporting information***

☐ The works for which this application is made have fulfilled all of the requirements of the EAA through the completion of the Municipal Class EA process in accordance with the procedures set out in:

☐ Schedule A ☐ Schedule B ☐ Schedule C

If Schedule A, was the project planned in accordance with section A.2.9 – Integration with the *Planning Act* of the Class EA?

☐ Yes ☐ No

If Yes, please submit a copy of the summary required by section A.2.9.3 of the Class EA and a copy of the Planning Act notice.

If Schedule B or C of the Municipal Class EA, please submit a copy of the Notice of Completion.

Were Part II Order requests received? ☐ Yes ☐ No

If Yes, please submit a copy of the Minister's decision letter.

☐ The works for which this application is made have fulfilled all of the requirements of the EAA through the completion of the requirements of another class EA process:

Name of Class EA: _____

Schedule/Group/Category (if applicable): _____

If applicable, please submit a copy of the Notice of Completion.

Were Part II Order requests received? ☐ Yes ☐ No

If Yes, please submit a copy of the Minister's decision letter.

☐ The works for which this application is made have fulfilled all of the requirements for the Environmental Screening Process pursuant to O. Reg. 116/01 of the EAA through:

☐ Completion of an Environmental Screening.

☐ Completion of an Environmental Review

Please submit the Statement of Completion, and indicate if any Elevation Request(s) were received.
If Elevation Request(s) were received, please submit a copy of the Director's decision letter.
If the Director's decision was appealed to the Minister, please submit a copy of the Minister's decision letter.

☐ The works for which this application is made have fulfilled all of the requirements of the EAA through the preparation of an environmental assessment.

Please submit a copy of the signed Notice of Approval.

Was this undertaking designated subject to the EAA by regulation? ☐ Yes ☐ No

If yes, please indicate the regulation: _____

9. Environmental Bill of Rights Requirements (EBR) Requirements

Is this a proposal for a prescribed instrument under EBR? ☒ Yes ☐ No

If "Yes", is this proposal exempted from EBR requirements? ☐ Yes ☒ No

If "Yes," please check one of the following

☐ This proposal has been considered in a substantially equivalent process or by a decision of a tribunal. **Please provide supporting information**

☐ This proposal is for an amendment to or revocation of an existing Certificate of Approval that is not environmentally significant. **Please provide supporting information**

☐ This proposal is for an emergency situation. **Please provide supporting information**

☐ This proposal has been subject to or exempted from EAA Requirements. **Please provide supporting information**

10. Additional Public Consultation/Notification

Separate list attached? ☐ Yes ☒ No

Specify all public consultation/notification *(such as public hearings, notification of First Nations, request for an Alternative Standard under s.32 of O. Reg. 419/05, etc.)* related to the project that have been completed or are in the process of being completed. Please attach a separate list describing each of these consultation activities, the results achieved, and planned future consultation activities.

Public consultation was completed.

11. List of Attachments - *This is a list of all supporting information to this application and is subject to the Freedom of Information and Privacy Protection Act and the Environmental Bill of Rights.*

Attachment	Attached	Reference	Can be disclosed
Information Required by Application Form			
[illegible] Application Worksheet - Supplement to Application for Approval, EPA S.9 (PIBS 4873)	☒ Yes	Attachment 1	☐ Yes ☒ No
Costs for EPA S.9 Applications - Supplement to Application for Approval (PIBS 4108)	☒ Yes	Attachment 2	☐ Yes ☒ No
Application Fee (cheque or money order attached or credit card information provided)	☒ Yes		☐ Yes ☐ No
Information Supporting Compliance with O. Reg. 419/05			
Emission Summary and Dispersion Modelling (ESDM) Report prepared in accordance with s.22 of O. Reg. 419/05 (including signed checklist – PIBS 5357e)	☒ Yes ☐ No	If no, indicate why: ☐ Minor Amendment (no technical review) ☐ Equipment Subject to Streamlined Review ☐ Subsurface Approval	☐ Yes ☒ No
Supporting information for a Maximum Ground Level Concentration Acceptability Request for Compounds with no Ministry POI Limit - Supplement to Application for Approval, EPA S.9 (PIBS 4872)	☐ Yes ☒ No		☐ Yes ☐ No
Information Supporting Compliance with Noise and Vibration Guidelines			
Noise Screening Process for S.9 Applications -Supplement to Application for Approval (PIBS 4871)	☐ Yes ☒ No		☐ Yes ☐ No
Does the Equipment/Facility meet minimum separation distance?	☐ Yes ☒ No		☐ Yes ☐ No
If the Equipment/Facility does not meet minimum separation distance, then attach:			
1. Acoustic Assessment Report including signed checklist (PIBS 5356e)	☒ Yes ☐ No	Attachment 4	☐ Yes ☒ No
2. Vibration Assessment Report	☐ Yes ☒ No		☐ Yes ☐ No
Other Information Supporting Compliance With Applicable Regulations and Guidelines or to Describe the Project (include separate list if required)			
	☐ Yes ☐ No		☐ Yes ☐ No
	☐ Yes ☐ No		☐ Yes ☐ No

12. Payment Information

Amount Enclosed: $ 2,900 *Please attach completed "Costs for EPA s.9 Applications – Supplement to Application for Approval" (PIBS 4108).*

Method of Payment

☒ Cheque ☐ Money Order ☐ VISA ☐ MasterCard ☐ American Express

Credit Card Information *(if paying by VISA, MasterCard or American Express)**

Name on Card *(please print)*	Credit Card Number	Expiry Date (m/y)

Cardholder Signature	Date *(y/m/d)*

**NOTE: credit card accepted for payments UNDER $10,000.00 only.*

13. Statement of Applicant

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted in support of this application is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*..
- The Project Technical Information Contact identified in section 5 of this form is authorized to act on my behalf for the purpose of obtaining approval under Section 9 of the EPA for the equipment/processes identified herein.
- I have used the most recent application form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or the Environmental Assessment and Approvals Branch at 1-800-461-6290) and I have included all necessary information required by O. Reg. 419/05, identified on this form and in the Guidance Material.

Name of Signing Authority *(please print)*	Title
Tony Bigshot	Owner, ACME Waste Inc.

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
(905) 555-1234 ext 1	(905) 555-1235	TonyB@acme.com

Signature	Date *(y/m/d)*
Tony Bigshot	2010/03/15

Address Information:

Same as Applicant Physical Address? ☒ Yes ☐ No (If no, please provide signing authority mailing address information below)

Civic Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)*

Municipality	Postal Station	Province/State	Country	Postal Code

ATTACHMENT 1

SUPPORTING INFORMATION WORKSHEET, SUPPLEMENT TO APPLICATION FOR APPROVAL, EPA S.9 AND SUPPORTING INFORMATION

Ministry of the Environment

Ministère de l'Environnement

Ontario

SUPPORTING INFORMATION WORKSHEET
SUPPLEMENT TO APPLICATION FOR APPROVAL, EPA S.9

This document lists the attachments to the Section 9 Application Form that may be required from an applicant. This worksheet is intended to assist applicants in completing the Application Form and should be read in conjunction with the Guide to Applying for Approval (Air and Noise) dated February, 2005.

This worksheet must be attached to a Section 9 Application Form to be considered complete

	Attachment	Guide to Applying Reference	Required if…	Included	Reference	Confidential
1.	Proof of Legal Name of Applicant	Section 4.1	Always Required unless Master Business Licence is submitted	☐ Yes ☒ N/A		Not Applicable
2.	Copy of Master Business Licence	Section 4.2	Applicant is an Ontario Company and wishes to simplify the application process	☒ Yes ☐ N/A		Not Applicable
3.	Legal Survey	Section 4.3	If survey address is provided	☐ Yes ☒ N/A		
4.	Copy of NEDPA Permit	Section 4.3	Facility is within an area of development control as defined by the Niagara Escarpment Planning and Development Act	☐ Yes ☒ N/A		☐ Yes ☒ No
5.	Copy of Municipal Planning Approval (ORMCA)	Section 4.3	Facility is within the Oak Ridges Moraine Conservation Area	☐ Yes ☒ N/A		☐ Yes ☒ No
6.	Name, Address and Phone Number of the Operating Authority	Section 4.3	Equipment will be operated not by the applicant but by an Operating Authority	☐ Yes ☒ N/A		☐ Yes ☒ No
7.	Name, Address and consent of the land/site owner for the installation/construction and operation of the equipment/facility	Section 4.3	Applicant is not the owner of the site where the facility is located	☐ Yes ☒ N/A		☐ Yes ☒ No

	Attachment	Guide to Applying Reference	Required if…	Included	Reference	Confidential
8.	Copy of current Certificate of Approval	Section 4.5	Application is for an amendment to a current CofA	☐ Yes ☒ N/A		Not Applicable
9.	List of all environmental approvals/permits applied for relating to this project or received in relation to this project.	Section 4.5	Other environmental approvals/permits have been applied for or issued under the EPA or OWRA in relation to this project only	☒ Yes ☐ N/A		Not Applicable
10.	Copy of Provincial Officer's Order requiring submission of application	Section 4.5	Application is a result of a Provincial Officer's Order	☐ Yes ☒ N/A		Not Applicable
11.	List of all approvals issued to this facility under Section 9 of the *Environmental Protection Act*	Section 4.6	Previous Section 9 approvals have been issued to the facility	☐ Yes ☒ N/A		Not Applicable
12.	Supporting information that proposal is not a Prescribed instrument under the EBR	Section 4.6	Application meets the requirements of O. Reg 681/94	☐ Yes ☒ N/A		☐ Yes ☒ No
13.	Supporting information relating to exemption from the public participation requirements of the *Environmental Bill of Rights.*	Section 4.7	Applicant is requesting that the proposal is exempt from posting on the Environmental Registry	☐ Yes ☒ N/A		☐ Yes ☒ No
14.	Supporting information relating to exemption from or fulfilment of requirements under the *Environmental Assessment Act.*	Section 4.7	Application is part of an undertaking subject to the EAA	☐ Yes ☒ N/A		☐ Yes ☒ No
15.	List describing public consultation activities related to this project	Section 4.7,8	Applicant is involved in any public consultation / notification activities in addition to EBR / EAA	☐ Yes ☒ N/A		☐ Yes ☒ No
16.	Application Fee	Section 4.10	Always Required	☒ Yes ☐ N/A		Not Applicable
17.	Financial Assurance	Section 2	If The Section 9 Director determines that Financial Assurance is necessary based on the nature of the Application (Waste Disposal Site or Remediation for example)	☐ Yes ☒ N/A		☐ Yes ☒ No
18.	Applicant Fee Worksheet	Section 4.9	Always Required	☒ Yes ☐ N/A		Not Applicable

Please note: the release of information contained in application forms and documentation submitted in support of applications for approval is subject to the provisions of the *Freedom of Information and Protection of Privacy Act*. This Act defines what may and may not be disclosed to the public, and is used to assess all requests for information contained in the documents on file with an application for approval.

The information submitted with an application for approval may also be subject to the *Environmental Bill of Rights*. In those situations, the application and the associated non-confidential supporting documentation is made available for review by members of the public.

The applicants should therefore identify all documents as noted above which are to be considered confidential and must provide detailed evidence in support of this claim. This evidence will be one of the factors the ministry would consider when making a decision regarding disclosure of specific documents on file.

Ministry of the Environment | Ministère de l'Environnement

Ontario

REQUEST UNDER s. 20(4) TO HAVE THE SCHEDULE 3 STANDARDS APPLY IN ADVANCE OF THE DATE REQUIRED BY REGULATION 419/05

General Information

Information requested in this form is collected under the authority of the *Environmental Protection Act*, R.S.O. 1990 (EPA) and the *Environmental Bill of Rights*, C. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate requests to have the Schedule 3 Standards of Air Pollution – Local Air Quality Regulation (O. Reg. 419/05) in advance of the date required by the regulation. **INCOMPLETE FORMS WILL BE RETURNED TO THE APPLICANT.** Even if the form is accepted as complete the Ministry of the Environment may request additional information during the review of this request.

1. Questions regarding completion and submission of this request should be directed to the Environmental Assessment and Approvals Branch (EAAB) of the Ministry of the Environment at the address below or to the local Ministry of the Environment (MOE) District Office which has jurisdiction over the area in which the facility is located. A list of these District Offices is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist.

2. Two copies of this form must be submitted to the Ministry of the Environment. The original should be sent to:

   Ministry of the Environment,
   Director, O.Reg. 419/05 s.20(4),
   Environmental Assessment and Approvals Branch
   2 St. Clair Avenue West, Floor 12A
   Toronto, Ontario, M4V 1L5
   Phone: 416-314-8001
   Toll Free: 1-800-461-6290
   Email: EAABGen@ene.gov.on.ca

   A copy of this form should be sent to the local District Office which has jurisdiction over the area where the facility is located.

3. Information contained in this application form is not considered confidential and will be made available to the public upon request. Information submitted as supporting information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to request to have Schedule 3 standards from O. Reg. 419/05 apply in advance of the date required by the regulation and should be accompanied by a description of the circumstances surrounding this request. In accordance with s.20(4) a person who discharges or causes or permits the discharge of a contaminant from a property may request the Director to consider issuing a written notice under s. 20(4) requiring that s.20 apply to the facility on a date specified in the notice. This request may be made for all of the contaminants at the facility or for specified contaminants.

The Director will not consider a request under s. 20(4) unless the person making the request provides the concentration at point of impingement using an approved dispersion model acceptable under s. 20 for the contaminants that are the subject of this request. This information should be summarized on the table included in this form or indicated in an application for a Certificate of Approval.

If the request is limited to specific contaminants (the request is not for all contaminants at a facility) then the person making the request must also include the concentration at point of impingement using an approved dispersion model acceptable under s. 20 for all contaminants that are not included in the request but are associated with the contaminants that are the subject of the request. For example, if the request is for only particulate, and metals or semi-volatile contaminants are associated with the particulate, then the concentration at point of impingement for the associated metals or semi-volatile contaminants should also be provided on the table included in this form.

Note – your compliance limit remains Schedule 1 or 2 (whichever applies) until a date specified in the Notice.

Regulatory Authority

Section 20(4) The Director may give a person who discharges or causes or permits discharges of contaminants from a facility notice requiring the person to comply with this section, beginning on a date specified in the notice that is not later than January 31, 2020, if the notice is requested in writing by the person.

Section 20(6) A notice or order under subsection (4) or (5) applies in respect of all contaminants unless the notice or order provides that it applies only in respect of contaminants specified in the notice or order.

1. Requestor Information *(Owner of works/facility)*

Requestor Name *(legal name of individual or organization as evidenced by legal documents)*: ACME Waste Inc.

Business Identification Number: 123456789

Business Name *(the name under which the entity is operating or trading if different from the Applicant Name - also referred to as trade name)*: ACME Waste Inc.

Requestor Type:

- [x] Corporation
- [ ] Individual
- [ ] Partnership
- [ ] Sole Proprietor
- [ ] Federal Government
- [ ] Municipal Government
- [ ] Provincial Government
- [ ] Other *(describe)*:

North American Industry Classification System (NAICS) Code: 562210-Waste Treatment and Disposal

Business Activity Description *(a narrative description of the business endeavour, this may include products sold, services provided or machinery/equipment used, etc.)*: Non-hazardous waste treatment and disposal

2. Project Technical Information Contact

Name	Company
Joe Consultant	P.E.S Stacks Inc.

Civic Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
234 Other Street	Suite 1

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)*

Municipality	Postal Station	Province/State	Country	Postal Code
Othertown		ON	Canada	A1B 2C3

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
(905)555-2345	(905)555-2399	JoeConsultant@PES.com

3. Ontario Regulation 419/05 Information

1. Does this request apply to all contaminants? *(please complete the attached table for all applicable contaminants)*
   - [X] Yes [ ] No
2. How does the applied for change affect your compliance?
   - [X] Remain Compliant [ ] Remain Non-Complaint
   - [ ] Move Into Compliance [ ] Move Into Non-Compliance
3. a) Which section of O. Reg. 419/05 currently applies to your facility?
   - [ ] s. 18 (Schedule 1) [X] s. 19 (Schedule 2)

   b) Without this notice, when would O. Reg. 419/05 require s. 20 (Schedule 3) standards apply to your facility (dd/mm/yyyy)? 01/02/2020
4. Is this form submitted with an Application for Certificate of Approval under Section 9 of the EPA?
   - [X] Yes **if yes, is the application dependant on granting of notice?** [X] Yes [ ] No
   - [ ] No
5. Does this application relate to an Application for Certificate of Approval under Section 9 of the EPA that has already been made to the Ministry of the Environment or an existing Certificate of Approval?
   - [ ] Yes **if yes, please provide the application reference number or current Certificate of Approval Number:**
   - [X] No
6. Will this change affect any limits or conditions in your existing Certificate(s) of Approval under Section 9 of the EPA?
   - [ ] Yes **if yes, please provide additional supporting information:**
   - [X] No
7. Is your facility currently subject to an approved abatement plan (e.g. Order) that would be affected by this change?
   - [ ] Yes **if yes, have you discussed this change with MOE District Office representatives?** [ ] Yes [ ] No
   - [X] No
8. Has a request for approval for an alteration of a Schedule 3 standard under s. 32 of O. Reg. 419/05 been made for this facility?
   - [ ] Yes **if yes, please attach a copy of ministry acknowledgement letter (if available) or an overview of the request**
   - [X] No

4. Statement of Requestor

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted in support of this application is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- The Project Technical Information Contact identified in section 2 of this form is authorized to act on my behalf for the purpose of obtaining a notice to have the Schedule 3 standards of O. Reg. 419/05 apply in advance of the date required by the regulation.
- I have used the most recent request form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PetAir or the Environmental Assessment and Approvals Branch at 1-800-461-6290) and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Tony Bigshot	Owner, ACME Waste Inc.

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
(905) 555-1234 ext 1	(905) 555-1235	TonyB@acme.com

Signature	Date *(dd/mm/yyyy)*
Tony Bigshot	15/03/2010

Address Information :

Civic Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)*

Municipality	Postal Station	Province/State	Country	Postal Code

Contaminants Requested Under Section 20(4)

For Office Use Only		
Reference #	Reviewer	Contact #

Instructions

Please complete the following table providing the concentration at point of impingement using an approved dispersion model acceptable under the current section of O. Reg. 419/05 that applies to your facility as well as s. 20 for the contaminants that are the subject of this request.

If the request is limited to specific contaminants discharged from the facility (the request is not for all contaminants at a facility) then please include the concentration at point of impingement using an approved dispersion model for all contaminants that are not included in the request but are associated with the contaminants that are the subject of the request. For example, if the request is for only particulate, and metals or semi-volatile contaminants are associated with the particulate they should also be provided on the table. Indicate with a check mark on the left hand column which contaminants are the subject of the request or leave the column black if all contaminants are subject.

If you are applying for a Certificate of Approval for a facility under Section 9 of the EPA and this request is accompanying the application for approval, information regarding compliance with s. 18 or s. 19 compliance is not necessary (information may be included with the application for a Certificate of Approval)

Site Information

Site Name	NAICS Code
ACME Waste Inc.	562210
Site Address	
5555 Country Lane	
County / District	**Postal Code**
Somewhere	B2C 3D4
District Office	

Notes for Table:

a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).
b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)
c) POI Concentration : Point of Impingement Concentration

Do you require more space than offered in the table below?

☐ **Yes** **If yes, please attach a separate table**
☒ **No**

Is this request being submitted with an application for a Certificate of Approval (s.9) that includes an ESDM Report?

☒ **Yes** **If yes, the table below does not need to be completed**
☐ **No**

	Contaminant [a]	**CAS [b] Number**	Total Facility Emission Rate (g/s)	Schedule	Air Dispersion Model Used (if Sch. 3 please specify)	Maximum POI [c] Concentration ($\mu g/m^3$)	Averaging Period (hours)	MOE POI Limit ($\mu g/m^3$)	Limiting Effect	Percentage of MOE POI Limit
	1			☐ 1 ☐ 2 ☐ 3	O. Reg. 346					
	2			☐ 1 ☐ 2 ☐ 3	O. Reg. 346					
	3			☐ 1 ☐ 2 ☐ 3	O. Reg. 346					
	4			☐ 1 ☐ 2 ☐ 3	O. Reg. 346					
	5			☐ 1 ☐ 2 ☐ 3	O .Reg. 346					
	6			☐ 1 ☐ 2 ☐ 3	O. Reg.346					

Ontario

Sample of a Master Business Licence

Date Issued: ⌛✢✯✤ ✈
(yyyy-mm-dd)

Business Name and Mailing Address:

⌛✢✯✤ ✈★✢!!
⌐⌙◘ ⌛★✱✶✧✤✱✤ ➟✳✱✤✤✳
⌛★✱✳✯✶★▬ ✎★✳✠✱✯
✍□✍ ⌐⌛⌐

Business
Address: SAME AS ABOVE

Telephone: ⌛✢✯✤ ✈★✢!! Ext: Fax: ⌛✢✯✤ ✈★✢!!

E-Mail: ⌛✢✯✤ ✈★✢!!

Legal
Name(s): ⌛✢✯✤ ✈★✢!!

Type of
Legal Entity: ⌛✢✯✤ ✈★✢!!

Business Information	Number	Effective Date (yyyy-mm-dd)	Expiry Date (yyyy-mm-dd)
Acme Inc	123456789	⌛✢✯✤ ✈	⌛✢✯✤ ✈

To the Client: When the Master Business Licence is prestnted to any Ontario business program, you are not required to repeat information contained on this licence. Each Ontario business program is required to accept this licence when presented as part of its registration process.
Call the Ontario Business Connects Helpline at 1-800-565-1921 or (416) 314-9151 or TDD (416) 326-8566 if you have any problems.

To the Ontario business program: A client is not required to repeat any information contained in this licecen in any other form used in your registration process.

00/00

000 000000-0000000000 BATCH 0000

ATTACHMENT 2

COSTS FOR EPA S.9 APPLICATIONS, SUPPLEMENT TO APPLICATION FOR APPROVAL

Ministry of the Environment | Ministère de l'Environnement

Ontario

COSTS FOR EPA s.9 APPLICATIONS
SUPPLEMENT TO APPLICATION FOR APPROVAL

Information requested in this form is collected under the authority of the Environmental Protection Act, R.S.O. 1990 (EPA) and the Environmental Bill of Rights, c. 28, Statutes of Ontario, 1993, (EBR) and will be used to evaluate applications for approval under Section 9 of the EPA. This form is a supplement to the Application for Approval (Air & Noise) and should be submitted with all applications for approval under Section 9 of the ***EPA.***

O.Reg. 363/98 "Fees – Certificates of Approval" requires applicants for a certificate of approval under Section 9 of the EPA to pay a fee at the time of submitting the application. This fee must be calculated in accordance with the Fees Regulation. ***Applications that do not include the correct fee amount will not be processed by the EAAB.*** *This form is intended to assist applicants in calculating the correct fee amount in accordance with the Fees Regulation. For instructions/assistance completing this form, please refer to the publication titled: "Guide: Application Costs for Air Emissions, s.9 Environmental Protection Act". This form and associated publications are available on the Ministry of the Environment web site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or by contacting the Environmental Assessment and Approvals Branch at 1-800-461-6290 or (416) 314-8001.*

Company Name	Site Name	
ACME Waste Inc.	ACME Othertown Composting Facility	
Site Address - Street information *(includes street number, name, type and direction)*		Unit Identifier *(unit, suite, apt, etc)*
5555 Country Lane		
Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*		
Non Address Information *(includes any additional information to clarify clients' physical location)*		
Municipality/Unorganized Township	County/District	Postal Code
Othertown	Somewhere	B2C 3D4

Application Type: ***Indicate the applicable aspect(s) of the application and complete the corresponding section(s) of this form.***

☒ Application that requires technical review (Section 1)
Applications for a Greenfield facility, an existing facility that does not have any approvals, amendment to an existing CofA to add new equipment or to consolidate existing equipment into one CofA or for a Basic Comprehensive Certificate of Approval

☐ Revocation of an existing approval that requires technical review (Section 2)
This application is to revoke an existing approval or condition on a certificate of approval that requires a technical review such as a groundwater remediation system, air pollution control equipment (cyclone, dust collector); noise control measures (silencer, barrier)

☐ Administrative amendment of an existing approval (Section 3)
This application is for a minor amendment to an existing approval such as a minor technical correction, etc, that does not require a technical review

☐ Fee exempted amendment or revocation of an existing approval that does not require technical review (Section 4)
This application is required by a condition on a Certificate of Approval, or to revoke a CofA for equipment/facility that is no longer in operation and does not require technical review

Note: If you are seeking a Preliminary Review as defined by the Fee Regulation please contact the EAAB to discuss prior to proceeding with the application.

SECTION 1: **Application that Requires Technical Review**
Complete tables 1, 2 & 3 and enter your information in the summary table below.

(√)		Description	Cost
☒	A	Administrative processing (always required for all applications)	$ 200
☒	B	Fixed Cost Review for Equipment (Table 1)	$ 2000
☒	C	Emission Summary and Dispersion Modelling Report Review (Table 2)	$ 0
☒	D	Noise Assessment Review (Table 3)	$ 700
		TOTAL COST:	$ 2900

TABLE 1: *Fixed Cost Review for Equipment*

This table is to be used for new applications or for amendments or revocation to an existing approval. Applicants must identify all equipment that is the subject of the application and include the equipment in the appropriate category on the table. Sections used should be indicated in the left hand column. Equipment that has been previously approved does not have to be included on the table provided that the existing approved equipment is not being modified by the application.

Table 1.1 **Equipment subject to Site-wide Fees**

(√)		Description	Equipment Specification	Cost	Applicable Fee
☒	1.1.1	Combustion Equipment that uses natural gas, propane, no. 2 oil, landfill gas or sewage treatment gas for fuel for the purpose of providing comfort heating or emergency power, producing hot water or steam, or heating material in a system that does not discharge to the atmosphere	Total Heat input of all units ≤ 50,000,000 kJ/hr	$ 400	$ 400
☐	1.1.2	Storage tanks	N/A	$ 400	$
☐	1.1.3	Welding operations that use a maximum of 10 kilograms of welding rod per hour	N/A	$ 400	$
☐	1.1.4	The application is for an amendment to an existing approval which will not result in an increase in the discharge of any contaminant that was reviewed by the Director for the purpose of issuing the existing certificate	N/A	$400	$

Applicable Fee is based on the type of equipment, if the equipment does not meet the description or specification then use table 1.3

Table 1.2 **Equipment Subject to Individual Fees**

(√)		Description	Quantity of Equipment		Cost	Applicable Fee
			Formula to Calculate A	A		
☐	1.2.1	Combustion Equipment that uses waste derived fuel for the purpose of providing comfort heating, burning ≤ 15 litres per hour	# of pieces of combustion equipment		x $400 =	$
☐	1.2.2	Heat cleaning ovens used for parts cleaning, and associated parts washers or degreasing equipment, other than solvent degreasing equipment	# of heat cleaning ovens		x $400 =	$
☐	1.2.3	Cooling towers	# of cooling towers divided by two, rounded up to the next whole number		x $400 =	$
☒	1.2.4	Equipment used to control emissions of contaminants, other than a fume incinerator.	# of pieces of pollution control equipment	1	x $400 =	$ 400
☐	1.2.5	Laboratory fume hoods	# of laboratory fume hoods divided by 5, rounded up to the next whole number		x $400 =	$
☐	1.2.6	Paint spray booths and associated equipment that have a design capacity of up to 8 litres per hour of paint	# of paint spray booths		x $400 =	$
☐	1.2.7	Grain dryers	# of grain dryers		x $400 =	$

Applicable Fee is calculated based on the quantity of equipment, calculated using the formula specific for the equipment. Note the formula provides whole numbers only.

Table 1.3		Equipment not otherwise specified in the table			
(√)		Description	Number of Sources	Cost	Applicable Fee
☐	1.3.1	Equipment with a flow rate of less than or equal to 1.5 m^3/second		x $ 400 =	$
☒	1.3.2	Equipment with a flow rate of greater than 1.5 m^3/second	1	x $1,200 =	$ 1200
☐	1.3.3	If one or more of the contaminants to which the application relates is not represented in the Ministry of the Environment publication titled "Summary of Point Impingement Standards, Point of Impingement Guidelines and Ambient Air Quality Criteria (AAQCs)" dated, September 2001 as amended from time to time.	N/A	$300	$

TOTAL COST TABLE 1	$ 2000

Equipment (any plant, structure, apparatus, mechanism or thing that will discharge air and contaminants) that is the subject of the application that is not directly specified by Table 1.1 or 1.2 must be placed in one of the two categories in Table 1.3.

For equipment contained in this section of the table, multiple points of emission which satisfy specifically defined conditions of similarity will be considered equivalent to a single source when determining the application fee for a Certificate of Approval (Air).

The term “source” is defined in *Ontario Reg. 363/98, Fees – Certificates of Approval* as follows:

> “source” means an individual point of emission or a distinct process or area from which emissions may originate, and,
>
> (a) if more than one stack or vent arises from a common process, that process is a source and the individual points or emission are not sources, and
> (b) if two or more separate processes, each of which discharges a distinct mixture of contaminants, are discharged to a common stack, each of the separate processes is a source.

Points of emission are considered “similar” if they satisfy the following conditions:

(a) equivalent process activity;
(b) common contaminant emissions;
(c) emissions estimates are calculated using equivalent methods or formulas (with an allowance for modified process parameters); and
(d) dispersion calculations are performed according to equivalent methods (with an allowance for modified process parameters) and considering equivalent Points of Impingement.

TABLE 2: *Emission Summary and Dispersion Modelling Report Review*

This table is to be used for new equipment applications at existing facilities or for amendments to existing approvals. Applicants must identify the number of sources described in the ESDM Report with contaminants common to the equipment forming the subject of the application to determine the cost as outlined in the table. Sources that have been approved and do not emit common contaminants do not have to be included in the determination of the number of sources.

(√)	Number of Sources	Previously Reviewed?	Cost
☒	5 or less	No	$ 0
☐		Yes	$ 0
☐	6 to 10	No	$ 1,000
☐		Yes	$ 800
☐	11 to 20	No	$ 2,000
☐		Yes	$ 1,600
☐	More than 20	No	$ 3,000
☐		Yes	$ 2,400
		TOTAL COST TABLE 2	$ 0

A “source” may include multiple points of emission, provided the points of emission are “similar”.

Points of emission are considered "similar" if they satisfy the following conditions:

(a) equivalent process activity;
(b) common contaminant emissions;
(c) emissions estimates are based on equivalent methods or formulas (with an allowance for modified process parameters); and
(d) dispersion calculations are performed according to equivalent methods (with an allowance for modified process parameters) and considering equivalent Points of Impingement

When the ESDM Report is only for new sources, not previously approved, there is no cost for this review; it is included in the fixed cost for the particular discharge or equipment calculated under Table 1.

An ESDM Report may be considered previously reviewed when the equipment specified in the ESDM Report has been used to obtain a Certificate of Approval (Air) for that equipment in the past.

TABLE 3: *Noise Assessment Review*

This table is to be used for new applications or for amendments or revocation to an existing approval. Applicants must complete the Noise Screening Procedure included as an appendix in the ministry Document “Guide to Applying for Approval (Air and Noise)" dated January, 2005. If an applicant meets the screening requirements then no fee is required under this table. If the applicant does not meet the screening requirements and an Acoustic Assessment Report is required then the Applicants must identify all equipment that is included as a noise source in the Acoustic Assessment Report in the appropriate category on the following table. Sections used should be indicated within the left hand column. Equipment that has been previously approved does not have to be included on the table provided that the existing approved equipment is not being modified by the application.

Table 3.1 Equipment Subject to Individual Fees

(√)	Description		Quantity of Equipment		Cost	Applicable Fee
			Formula to Calculate A	A		
☐	3.1.1	Arc Furnaces	# of pieces		x $2,250 =	$
☐	3.1.2	Asphalt Plants	# of pieces		x $2,250 =	$
☐	3.1.3	Blow Down Devices	# of pieces		x $2,250 =	$
☐	3.1.4	Co-generation Facilities	# of pieces		x $2,250 =	$
☐	3.1.5	Crushing Operations	# of pieces		x $2,250 =	$
☐	3.1.6	Flares	# of pieces		x $2,250 =	$
☐	3.1.7	Gas Turbines	# of pieces		x $2,250 =	$
☐	3.1.8	Pressure Blowers or Large Induced Draft Fans (flow rate > 47m^3/second or static pressure > 1.25 kilopascals)	# of pieces		x $2,250 =	$

Table 3.2 Equipment Not Otherwise Specified in the Table

(√)	Description		First 5 Pieces of Equipment	Additional Equipment	Cost
☒	3.2.1	Equipment that has not previously been reviewed by the Section 9 Director in connection with an application for a certificate of approval with respect to the facility	$400	$100 x 3	$ 700
☐	3.2.2	Equipment is identical to equipment for which a noise assessment was previously reviewed by the Section 9 Director in connection with an application for a certificate of approval with respect to the facility	$200	$50 x _____	$

TOTAL COST TABLE 3	$ 700

SECTION 2: Revocation of an Existing Approval that Requires Technical Review
Complete tables 1, 2 & 3 and enter your information in the summary table below

(√)		Category	Cost
☐	A	Administrative processing (always required for all applications)	$ 200
☐	B	Fixed Cost Review for Equipment (Table 1)	$
☐	C	Emission Summary and Dispersion Modelling Report Review (Table 2)	$
☐	D	Noise Assessment Review (Table 3)	$
		TOTAL COST:	$

SECTION 3: *Administrative Amendment of an Existing Approval*

(√)	Description	Cost
☐	Administrative amendment (no technical review involved)	$ 100
	TOTAL COST:	$

SECTION 4: *Fee Exempted Amendment or Revocation of an Existing Approval that does not require technical review*

(√)	Description	Cost
☐	Administrative revocation (no technical review involved)	$ 0
☐	Any revocation requested as a result of requirements imposed by conditions of an existing approval	$ 0
☐	Any amendment requested as a result of requirements imposed by conditions of an existing approval	$ 0
	TOTAL COST:	$

ATTACHMENT 3

EMISSION SUMMARY AND DISPERSION MODELLING REPORT

EMISSION SUMMARY AND DISPERSION MODELLING REPORT

ACME Othertown Composting Facility
Othertown, Ontario

Version 1.0

MARCH 2010

Prepared by:
P.E.S. Stacks Inc.
234 Other Street
Othertown, ON A1B 2C3
905-555-2345

Version Control

Rev.	Date	Revised Description	Reviewer Initials
1.0	**March 15,2010**	**Proposed – Original document for C of A Application**	**FSA**

Table of Contents

SECTION PAGE
EXECUTIVE SUMMARY AND EMISSION SUMMARY TABLE VI
1.0 INTRODUCTION AND FACILITY DESCRIPTION 1
1.1 Purpose and Scope of ESDM Report 1
1.2 Description of Processes and NAICS Codes 2
1.2.1 Operating Parameters 2
1.2.2 Waste Receipt 3
1.2.3 SSO Enclosed Channel Composting 3
1.2.4 Leaf and Yard Waste Windrow Composting 5
1.2.5 Curing 6
1.2.6 Screening 7
1.2.7 Ancillary Activities 7
1.2.8 Compost Final Use 7
1.2.9 Air Handling System and Biofilter 8
1.3 Description of Products and Raw Materials 9
1.4 Process Flow Diagram 10
1.5 Operating Schedule 10
1.6 Facility Production Limit 11
2.0 INITIAL IDENTIFICATION OF SOURCES AND CONTAMINANTS 12
2.1 Sources and Contaminants Identification Table 12
3.0 ASSESSMENT OF SIGNIFICANCE OF SOURCES AND CONTAMINANTS 13
3.1 Identification of Negligible Contaminants and Sources 13
3.2 Rationale for Assessment 13
4.0 OPERATING CONDITIONS, EMISSIONS ESTIMATING AND DATA QUALITY 14
4.1 Description of Operating Conditions 14
4.2 Explanation of the Methods Used to Calculate Emission Rates 14
4.3 Sample Calculations 15
4.4 Assessment of Data Quality 15
5.0 SOURCE SUMMARY TABLE AND SITE PLAN 16
5.1 Source Summary Table 16
5.2 Site Plan 16
6.0 DISPERSION MODELLING 17
6.1 Dispersion Modelling Input Summary Table 17
6.2 Coordinate System 18
6.3 Meteorology and Land Use Data 18
6.4 Terrain 18
6.5 Receptors 19
6.6 Building Downwash 19
6.7 Deposition 20

6.8 Averaging Time and Conversions 20
6.9 10- Minute Averaging Standards Modelling 20
6.10 Dispersion Modelling Options 21
6.11 Dispersion Modelling Input and Output files 22
7.0 EMISSION SUMMARY TABLE AND CONCLUSIONS 23
7.1 Emission Summary Table 23
7.2 Assessment of Contaminants with no MOE POI Limits 23
7.3 Conclusions 24

List of Tables

Table 1	Sources and Contaminants Identification Table
Table 2	Source Summary Table
Table 3	Dispersion Modelling Modelling Input Summary Table
Table 4	Dispersion Modelling Source Summary Table
Table 5	Emission Summary Table

List of Figures

Figure 1	Site Location Plan
Figure 2	Land Use Zoning Designation Plan
Figure 3	Site Plan and Roof Layout
Figure 4	Process Flow Diagram
Figure 5	Dispersion Modelling Plan
Figure 6	3 Kilometer Satellite Image
Figure 7	Site Plan - Terrain Elevations
Figure 8	Dispersion Modelling Receptors
Figure 9	BPIP Plan

List of Appendices

Appendix A	Sample Calculations
Appendix B	Supporting Information For Assessment of Negligibility
Appendix C	Dispersion Modelling Data and Electronic Files (on CD)
Appendix D	Stack Testing Data
Appendix E	Odour Impact Assessment
Appendix F	Odour Management Plan
Appendix G	Odour Literature Study Results
Appendix H	Manufacturer Equipment Specifications

Appendix I Environment Canada Emission Factors

Appendix J Start-up and Commissioning Protocol

Ministry of the Environment | Ministère de l'Environnement

Ontario

EMISSION SUMMARY AND DISPERSION MODELLING REPORT CHECKLIST

Company Name: ACME Waste Inc.

Company Address: 123 Anywhere St.
Anytown, ON, A1B 2C3

Location of Facility: 5555 Country Lane
Othertown, ON, B2C 3D4

The attached Emission Summary and Dispersion Modeling Report was prepared in accordance with s.26 of O. Reg. 419/05 and the guidance in the MOE document "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July, 2005 and "Air Dispersion Modelling Guideline for Ontario" dated July 2005 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

Company Contact:	ACME Waste Inc.
Name:	Tony Bigshot
Title:	Owner
Phone Number:	(905)555-1234
Signature:	Tony Bigshot
Date:	March 15, 2010

Technical Contact:	
Name:	Joe Consultant
Representing:	P.E.S. Stacks Inc.
Phone Number:	(905) 555-2345
Signature:	Joe Consult
Date:	March 15, 2010

* This checklist is taken from the document titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July, 2005

EMISSION SUMMARY AND DISPERSION MODELLING REPORT CHECKLIST

	Required Information			
			Submitted	Explanation/Reference
	Executive Summary and Emission Summary Table			
	1.1	Overview of ESDM Report	☒ Yes	Executive Summary
	1.2	Emission Summary Table	☒ Yes	Executive Summary
1.0	**Introduction and Facility Description**			
	1.1	Purpose and Scope of ESDM Report (when report only represents a portion of facility)	☒ Yes	Section 1.1
	1.2	Description of Processes and NAICS code(s)	☒ Yes	Section 1.2
	1.3	Description of Products and Raw Materials	☒ Yes	Section 1.3
	1.4	Process Flow Diagram	☒ Yes	Section 1.4 &Figure 4
	1.5	Operating Schedule	☒ Yes	Section 1.5
2.0	**Initial Identification of Sources and Contaminants**			
	2.1	Sources and Contaminants Identification Table	☒ Yes	Section 2.1 &Table 1
3.0	**Assessment of the Significance of Contaminants and Sources**		☒ Yes	
	3.1	Identification of Negligible Contaminants and Sources	☒ Yes	Section 3.1
	3.2	Rationale for Assessment	☒ Yes	Section 3.2 & Appendix B
4.0	**Operating Conditions, Emission Estimating and Data Quality**			
	4.1	Description of operating conditions, for each significant contaminant that results in the maximum POI concentration for that contaminant	☒ Yes	Section 4.1 & Appendix A
	4.2	Explanation of Method used to calculate the emission rate for each contaminant	☒ Yes	Section 4.2 & Appendix A
	4.3	Sample calculation for each method	☒ Yes	Section 4.3 & Appendix A
	4.4	Assessment of Data Quality for each emission rate	☒ Yes	Section 4.4
5.0	**Source Summary Table and Property Plan**			
	5.1	Source Summary Table	☒ Yes	Section 5.1 &Table 2
	5.2	Site Plan (scalable)	☒ Yes	Section 5.2 &Figure 1/3
6.0	**Dispersion Modelling**			
	6.1	Dispersion Modelling Input Summary Table	☒ Yes	Section 6.1 &Table 3
	6.2	Land Use Zoning Designation Plan	☒ Yes	Section 6.2 & Figure 2
	6.3	Dispersion Modelling Input and Output Files	☒ Yes	Section 6.3 & Appendix C
7.0	**Emission Summary Table and Conclusions**			
	7.1	Emission Summary Table	☒ Yes	Section 7.1 & Table 5
	7.2	Assessment of Contaminants with no MOE POI Limits	☒ Yes	Section 7.2
	7.3	Conclusions	☒ Yes	Section 7.3
	Appendices (Provide supporting information or details such as…)			
	See Table of Contents		☐ Yes	
			☐ Yes	
			☐ Yes	
			☐ Yes	
			☐ Yes	
			☐ Yes	
			☐ Yes	

 * This checklist is taken from the document titled “Procedure for Preparing an Emission Summary and Dispersion Modelling Report” dated July, 2005

EXECUTIVE SUMMARY AND EMISSION SUMMARY TABLE

This Emission Summary and Dispersion Modelling (ESDM) Report was prepared to support an application for a Consolidated Certificate of Approval (Air & Noise) (C of A). The ESDM Report was prepared in accordance with s.26 of Ontario Regulation 419/05 (O.Reg. 419/05) to support the C of A Application. In addition, guidance in the Ontario Ministry of the Environment (MOE) publication "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated March 2009 (ESDM Procedure Document) was followed as appropriate.

ACME Waste Inc. (ACME) is proposing to construct and operate ACME Othertown Composting Facility (ACME OCF) to accommodate the composting of source separated organics (SSO) (food waste and non-recyclable tissue), clean wood and brush (wood), and leaf and yard waste (LY). The Facility will be located at 5555 Country Lane in Othertown, Ontario (Facility). The Facility is located in an area zoned for industrial use.

The Facility will be constructed upon receipt of all required approvals in addition to the Certificate of Approval (C of A) (Air &Noise). The North American Industrial Classification (NAICS) code that applies to this Facility is 562210-Waste Treatment and Disposal. The Facility is not a solid waste combustor or incinerator nor is it used for hazardous waste treatment or disposal, therefore this Facility does not appear in Schedule 4 or 5. As such, s.19 of O.Reg. 419/05 applies. The Facility has made a request under O. Reg. 419/05 s.20(4) to have Schedule 3 standards apply in advance of the date specified in the regulation. As such, the assessment of compliance was performed using an approved dispersion model (AERMOD) and the standards listed in Schedule 3 of O.Reg. 419/05, and as listed in the MOE publication "Summary of O.Reg. 419 Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008 (List of MOE POI Limits).

The Facility is expected to emit Particulate, Ammonia, Total Reduced Sulfur, Products of Combustion and Odour. Some of the sources and contaminants were considered negligible in accordance with s.8 of O.Reg. 419/05.

The maximum Point of Impingement (POI) concentrations were calculated based on the operating conditions where all significant sources are operating simultaneously at their individual maximum rates of production. The maximum emission rates for each significant contaminant emitted from the significant sources were calculated in accordance with s.11 of O.Reg. 419/05 and the data quality assessment follows the process outlined in the requirements of the ESDM Procedure Document.

A POI concentration for each significant contaminant emitted from the Facility was calculated based on the calculated emission rates and the output from the approved dispersion model; the

results are presented in the following Emission Summary Table in accordance with s.26 of O.Reg. 419/05.

All the predicted POI concentrations listed in the Emission Summary Table that are included in the List of POI Limits are below corresponding limits. The highest maximum POI concentration is 59 % of the 24-hour limit for Nitrogen Oxides.

In summary, this C of A (Air and Noise) application demonstrates that the Facility complies with all applicable regulatory and MOE requirements under Section 9 of the EPA.

Emission Summary Table
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Contaminant	*CAS Number*	*Total Facility Emission Rate (g/s)*	*Air Dispersion Model Used*	*Maximum POI Concentration (ug/m3) (1)*	*Averaging Time Period (hrs)*	*MOE POI Limit (ug/m3)*	*Limiting Effect*	*Regulation Schedule #*	*Percentage of POI Standard (%)*
Nitrogen Oxides	10102-44-0	2.59E+00	AERMOD	2.06E+02	1	400	Health	3	51%
			AERMOD	1.18E+02	24	200	Health	3	59%
Nitrogen Oxides (emergency generator)	10102-44-0	7.86E-01	AERMOD	1.50E+01 (2)	0.5	1880 (1)	Health	NA	<1%
Carbon Monoxide	630-08-0	5.58E-01	AERMOD	5.32E+01 (2)	0.5	6000	Health	3	<1%
Sulphur Oxides (as Sulphur Dioxide)	7446-09-5	1.71E-01	AERMOD	1.36E+01	1	690	Health & Veg	3	2%
				5.44E+00	24	275	Health & Veg	3	2%
Ammonia	7664-41-7	2.27E-01	AERMOD	1.35E+01	24	100	Health	3	13%
Hydrogen Sulfide	7783-06-4	7.55E-04	AERMOD	--	Included in TRS	--	--	--	--
Mercaptans	NA	7.55E-03	AERMOD	--	Included in TRS	--	--	--	--
Odour(3)	NA	9.06E+03 (OU m3/s)	AERMOD	2.19E+00 (OU)(4)	10 min	1 OU (6)	Odour	NA	NA
	NA			<1 (99.5%) (5)	10 min	1 OU (6)	Odour	NA	--
Particulate Matter	NA	1.84E-01	AERMOD	1.46E+01	24	120	Visibility	3	12%
Total Reduced Sulfur (TRS)	NA	8.31E-03	AERMOD	2.64E-01	24	7	Health	3	4%
			AERMOD	1.09E+00(2)	10 min	13	Odour	3	8%

Notes:

Notes on Column labelled Regulation Schedule # : 3 refers to Standards in Schedule 3 of O. Reg. 419/05
NA- Not available

(1) One-hour GLC converted to 0.5 hr GLC using conversion factor of 1.2 and converted to 10 minute using a conversion factor of 1.65.
(2) Standby generator NOx allowable POI limit of 1,880 ug/m3 per 0.5hr period
(3) Local meterological data used for odour dispersion modelling.
(4) The odour value represents the maximum predicted 10-minute 100th percentile value at any sensitive receptor
(5) Refer to Table 3 (Appendix E) for Frequency analysis.
(6) Note that 1 OU is not a regulation criteria, however it is a guideline value typically used by the MOE.

1.0 INTRODUCTION AND FACILITY DESCRIPTION

This section provides a description of the Facility as required by subparagraph 1 of s.26 (1) of Ontario Regulation 419/05 (O.Reg. 419/05).

ACME Waste Inc. (ACME) is proposing to construct and operate ACME Othertown Composting Facility (ACME OCF) to accommodate the composting of source separated organics (SSO) (food waste and non-recyclable tissue), clean wood and brush (wood) and leaf and yard waste (LY). The Facility will be located at 5555 Country Lane in Othertown, Ontario (Facility). The Facility is on the north side of Country Lane, 10 kilometres east of the intersection with Highway 2. The legal description for the Facility location is the southeast corner of Lot 15, Concession 3, Municipality of Othertown, Somewhere County. The 27.6-hectare site is currently owned by ACME and will be operated by ACME staff.

The location of the Facility is presented on Figure 1 and the land use designation of the site and surrounding area is presented on Figure 2. The location of the discharges from each of the sources is presented on Figure 3; the location of each of the sources is specified with the source reference number.

The Facility will be constructed upon receipt of all required approvals in addition to the Certificate of Approval (C of A) (Air &Noise). The North American Industrial Classification (NAICS) code that applies to this Facility is 562210-Waste Treatment and Disposal. The Facility is not a solid waste combustor or incinerator nor is it used for hazardous waste treatment or disposal, therefore this Facility does not appear in Schedule 4 or 5. As such, s.19 of O.Reg. 419/05 applies. The Facility has made a request under O. Reg. 419/05 s.20(4) to have Schedule 3 standards apply in advance of the date specified in the regulation. As such, the assessment of compliance was performed using an approved dispersion model (AERMOD) and the standards listed in Schedule 3 of O.Reg. 419/05, and as listed in the MOE publication "Summary of O.Reg. 419 Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008 (List of MOE POI Limits).

1.1 Purpose and Scope of ESDM Report

This Emission Summary and Dispersion Modelling (ESDM) Report was prepared to support an application for a Consolidated C of A (Air&Noise) for all sources at the Facility.

This ESDM Report was prepared in accordance with s.26 of O.Reg. 419/05. In addition, guidance in the Ontario Ministry of the Environment (MOE) publication "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated March 2009 (ESDM Procedure Document) PIBS 3614e02 was followed as appropriate.

For ease of review and to promote clarity this ESDM Report is structured to correspond to each of the items listed in the Ministry publication "2005 Emission Summary and Dispersion Modelling Check-List" PIBS 5357e.

1.2 Description of Processes and NAICS Codes

ACME Waste Inc. (ACME) is proposing to construct and operate ACME Othertown Composting Facility (ACME OCF) to accommodate the composting of source separated organics (SSO) (food waste and non-recyclable tissue), clean wood and brush (wood) and leaf and yard waste (LY).

The North American Industrial Classification (NAICS) code that applies to this Facility is 562210 Waste Treatment and Disposal. This NAICS code is listed in Schedule 5 of O.Reg. 419/05 however, it is only applicable for a solid waste combustor or incinerator, or for hazardous waste treatment or disposal.

1.2.1 Operating Parameters

ACME OCF will be comprised of an enclosed channel composting operation for SSO waste and an outdoor windrow composting operation for leaf and yard waste. Curing of the composted SSO waste will also occur on the outdoor pad. A 3.915-hectare asphalt pad, internal service roads, a weigh building and an administration/maintenance building will be constructed at the Facility for the composting operations within a total footprint area of 13.8 hectares.

Composting is a controlled aerobic microbiological process that decomposes organic matter into carbon dioxide, water, minerals, and stabilized organic matter. The operational criteria which the facility procedures are designed to meet are:

- a carbon-nitrogen ratio of 20:1 for the enclosed channel composting operation and 30:1 for the leaf and yard waste operation, C:N ratios are controlled through appropriate mixing of feedstocks;
- a minimum 10% oxygen content, which will be controlled through targeting a compost mass porosity of 20% free air space, turning of windrows and with the aeration system in the enclosed channel composting system in order to prevent anaerobic conditions;
- a moisture content between 45% and 60% with an optimal target of 50%. Moisture levels which are initially set during feedstock preparation, can be controlled through turning (windrows), by addition of water from on-site sources, by increasing compost mass temperature, by boosting the percentage of bulking amendments in the compost mass or by increasing the air flow (enclosed channel);

- a particle size of between 2.5 and 5 centimeters(cm) achieved by shredding the waste during the pre-processing phase; and
- temperatures between 40°C and 60°C depending on the composting process phase.

Activities and processes associated with the operation include the receiving of waste, pre-processing (shredding, screening and mixing), formation of windrows (leaf and yard waste) or channel loading (SSO waste), active composting, curing and screening. The manner in which the composting operations will be carried out is described in the following sections.

1.2.2 Waste Receipt

All incoming organic wastes will pass over the weigh scale located at the Facility entrance, and will undergo a preliminary visual inspection. Leaf and yard waste loads containing obvious unacceptable material will be rejected and restricted from unloading. SSO waste loads will be directed to the enclosed channel composting operations building, while acceptable leaf and yard waste loads will be directed to the windrow operations area for unloading as determined by the Weigh Scale Receiving Attendant. Clean wood and brush will be directed to the chipping area for processing. Mixed loads of SSO waste and leaf and yard waste will not be accepted. The volume of material to be processed at the Facility will generate an average of 15 trucks accessing the site per day to drop off waste, with a maximum of 2 trucks delivering SSO and leaf and yard waste per hour.

1.2.3 SSO Enclosed Channel Composting

Pre-processing

Vehicles will enter the enclosed channel composting operations receiving area through two overhead doors located along the building's northern perimeter. SSO waste will not be unloaded until the overhead doors are closed. The Equipment Operator will inspect the SSO waste to ensure that it is acceptable. If the load contains small quantities of non-organic material, it will be removed and set aside for disposal.

The organic wastes will be promptly processed on the day of receipt. In the event that wastes can not be processed, the pre-processing area will have storage capacity to hold up to 3 days of SSO waste.

Upon receipt, the SSO waste will be size reduced. A front end loader will be used to load the feed hopper that leads to the shredder. The shredder breaks open kraft bags and reduces the size of larger organic waste (e.g., pumpkins). The SSO waste falls from the shredder onto a short conveyor and proceeds through a magnetic separator to remove metal contaminants.

Prior to processing, SSO waste will be mixed with woodchips to meet requirements for optimal composting. Generally the mixes will consist of a 3:1 ratio of SSO to woodchips, however this may vary depending on the moisture content of the SSO. The Equipment Operator will load one (1) bucket of wood chips for every three (3) buckets of SSO material.

The SSO waste will have seasonal differences. During summer, the SSO waste will tend to be wet and highly odiferous. To address this, the Somewhere County collection vehicles have been fitted with a trap. The trap valve will be opened overtop of a sump that is connected to the leachate tank to allow liquid which has settled to be discharged prior to unloading the SSO waste. The SSO waste will either be immediately processed or immediately covered with a layer of wood chips or overs. In the winter, the SSO waste will tend to arrive at the facility in a frozen state. To combat this, a portable blower unit, equipped with a heater and flexible ducting, will be used to blow pre-heated, ambient building air over the frozen SSO waste on the tipping floor and as it is being pre-processed.

Processing

The composting system includes six enclosed channels with a composting area of 1,400 m^2. The blended SSO will be loaded into the front end of a channel to the 1.0-metre (m) high level mark on the channel. Once the channel is loaded to the required height, the equipment operator will commence loading the next channel.

Active Composting

Once loaded into the channel the SSO waste will undergo a process of turning and aeration, during which the process will be monitored to ensure that the required time and temperature requirements are met.

The turner starts its processing at the output end of the channel, moving towards and completing its cycle at the input end of the channel. With each pass, the organic material is displaced 3 metres towards the output end of the channel until the material is eventually discharged for curing. As the turner makes repeated passes down the channel over time, it gradually moves the mass of waste from the input end to the output end of the channel. The retention time in the channel is 28 days. Between day 7 and 14 of the process, or approximately one third to one half of the way through the channel, the temperature will be kept between 55^{o}C and 65^{o}C for a minimum of 3 days to ensure pathogen inactivation. The system is designed such that the high rate composting process is largely completed by the time that the waste is discharged from the end of the channel.

Additional aeration is provided via a mechanical aeration system. Eight (8) air supply blowers alternately force air into the compost mass and draws air out of it. The air is circulated through

the compost mass by means of a diffuser system to allow distribution of air. The fans are controlled by a timer and a temperature feedback system similar to a home thermostat. Air circulation in the compost piles provides the needed oxygen for the composting microbes and also prevents excessive heat build-up in the compost mass. Removing excess heat and water vapour cools the compost mass to maintain optimum temperatures for microbial activity. The exhaust air is then discharged through the biofilter and through a stack.

The process control system measures the return and supply air temperatures, moisture levels, oxygen and carbon dioxide levels in three phases along each channel. Additional temperature probes are located at 2-m intervals at the point between one third to one half along the channel to allow for temperatures of the compost mass to be tracked more accurately to ensure that pathogen inactivation conditions are met. The compost process is continually monitored by a computer which ensures that all pre-set process parameters are met. The computer system automatically adjusts the fan speed and the water spray nozzles to ensure that the compost process proceeds in optimal conditions.

Following completion of the active stage of composting, the resulting SSO product will be moved outdoors for curing.

1.2.4 Leaf and Yard Waste Windrow Composting

Pre-processing

Vehicles will proceed from the Weigh Building to the leaf and yard waste sorting and processing area on the asphalt pad. Leaf and yard waste will be unloaded under the supervision of a Site Attendant, who will inspect the leaf and yard waste to ensure that it is acceptable. Acceptable loads will be promptly processed on the day of receipt. However, should same day processing not be possible, the pre-processing area will have storage capacity for up to 3 days of leaf and yard waste. Leaf and yard waste will be shredded, screened and mixed as required at the outdoor pre-processing area.

Processing

The windrows will be constructed on a wood chip base oriented such that they run parallel to the constructed slope of the compost pad. This will allow for proper drainage of the compost pad. Windrows will be formed to measure approximately 5 – 8 m wide, 3 m high, and 50 m in length. Spacing between the windrows will be approximately 2 m to allow movement between, and the routine turning of the piles. This will result in approximately sixteen active windrows. The orientation and spacing between the windrows may be modified from time-to-time at the discretion of the Site Attendant.

The shape of the windrows can be modified as necessary, depending on moisture requirements. For example, if additional moisture is required, the top of the windrow can be of a concave shape to promote capture of precipitation. If it is desirable to shed excess rainfall, the top of the windrow can be convex. This will be monitored and adjusted as necessary during operation.

After windrow formation, a sign will be placed on the windrow to identify it. The sign will state the month, day, and year that the windrow was formed (e.g., Sept 20-2010).

Active Composting

The composting process will be managed so that it enters into a high rate or active phase. It is also the part of the composting processing used to inactivate any pathogens that may be in the incoming feedstocks. The active phase of the composting process is characterized by temperatures exceeding 55^{o}C. The windrows will be maintained at 55^{o}C for at least 15 days. This 15-day period will not necessarily be consecutive, but will be cumulative. Windrows will be turned a minimum of five (5) times during this period.

The temperature of each windrow will be measured daily in accordance with the operating schedule for the Facility (i.e. measurements not recorded on Sundays or statutory holidays) at a depth of at least 1 m deep into the windrow mass, at a minimum of five (5) representative locations. The mean temperature of each windrow will be calculated and recorded. Moisture content will also be monitored by squeeze test or sampling for laboratory analysis, if required.

Once a windrow has achieved 55°C on 15 separate days the compost mass will be relocated on the asphalt pad to the curing area and cured for up to 6 months.

1.2.5 Curing

Following completion of the active stage of composting, the SSO and leaf and yard compost mass will be moved to the outdoor curing area, formed (or re-formed in the case of leaf and yard waste) into windrows, identified with a sign stating the month, day, and year of formation and left to cure until the final compost meets the Province's requirements for compost quality. This curing process will be a minimum of 30 days but can take up to 6 months. The curing of the compost will take place in up to six (6) curing piles.

During the curing stage, the temperature of each windrow will be measured at a depth at least 1 m deep into the windrow mass, at a minimum of five (5) representative locations, on at least a weekly basis. The curing windrows will measure approximately 16 m wide, 5 m high and 75 m in length. The mean temperature of each windrow will be calculated and recorded. While the windrows are in the curing stage they will be turned at a frequency of not less than once per month. Compost that has cured for 6 months or more will be considered stable without further

testing. For compost that has cured for less than 6 months, standard Solvita testing will be used on site as an indicator of maturity. Off-site sample testing by an accredited laboratory will be used in determining final stability of the finished product. In the absence of MOE requirements, the Canadian Council of Ministry of the Environment (CCME) maturity criteria will be used.

1.2.6 Screening

Finished product suitable for use will be screened to eliminate oversized residues (overs). Overs will be stockpiled at the Facility and inspected. Overs largely consisting of wood materials may be re-shredded and re-composted. Highly contaminated overs will be transferred to a landfill for disposal.

1.2.7 Ancillary Activities

Wood chips, to be used as bulking amendment, are produced from incoming clean wood waste (no painted or treated wood products). Brush will be shredded on a weekly basis using on-site equipment. Grinding of tree stumps will be contracted to a third party as required. It is anticipated that a tub grinder will be required three times per year for multiple days.

A separate 64 m^2 utility building is located directly adjacent to the east side of the main composting operations building. The utility building houses the leachate recovery system and the computer control room.

1.2.8 Compost Final Use

Finished product will not be removed from the Facility until the curing period is complete, all processing data has been reviewed and the final product has been verified by an accredited laboratory to meet the compost quality standards. The results of the analysis will dictate the final use of the finished product.

If laboratory analyses indicate that the finished product meets the MOE compost quality specifications, as stipulated in the "Interim Guidelines for the Production and Use of Aerobic Compost in Ontario, 2004" (Interim Guidelines), the material is considered a product and not a waste, and may be removed from the Facility with no restriction on its use. Unrestricted compost will be offered for bulk sale to the municipalities of Somewhere County, as well as sold commercially (e.g., landscaping companies; golf courses). The removal of the cured compost from the Facility will require an average of 10 trucks per day to remove finished compost with a maximum of 1 truck per hour on-site to remove compost.

1.2.9 Air Handling System and Biofilter

The enclosed channel operation building will be designed to maintain negative pressure under static conditions. Under normal operating conditions, the SSO receiving/storage area will have an air exchange rate of 6 per hour and product discharge area will have an air exchange rate of 4 per hour. The air from the receiving/storage and product discharge areas will be directed to the compost channels before being exhausted to a biofilter. An alarm system will sound when the negative pressure in the SSO receiving area and SSO storage area drops to or below the average air exchanges.

The air intake system will consist of a series of rectangular louvers located mid-height along the west exterior wall of the building. The louvers will be motorized and interlocked with the overhead truck doors.

A downdraft biofilter, with a 35 second(s) Empty Bed Residence Time, having dimension of 17 m by 8 m biofilter and a media depth of 2 m, will be installed on the east side of the building. The air inlet into the biofilter is a series of perforated 5-cm diameter plastic pipes laid overtop of a gravel bed. Air diffuses down through the media and out to atmosphere through a stack at a maximum air flow rate of 7.55 m^3/s.

The biofilter uses a permanent inorganic media which is warranted for a 10-year period. More specifically, the media has been chosen to meet the following specification requirements:

- porosity between 30 and 40%;
- effective surface area of approximately 100 m^2/g;
- a rigid structure (compact guarantee <5% over lifetime) which ensures that the retention time remains consistent and adequate time is achieved for complete phase transfer and subsequent oxidation of odiferous compounds;
- resistance to acid or biological degradation to ensure longstanding consistent particle size distribution; and
- fortification with buffers, nutrients and other additives that attract hydrophobic compounds to address a spectrum of odour causing compounds (i.e., not limited to soluble odour causing compounds).

A humidification system will spray inlet air, as necessary, to maintain a 40-60% moisture level in the media. A sprinkler system embedded in the biofilter medium provides supplementary moisture directly at the interface of the media and odiferous air. The inorganic media has an internal micropore and channel structure which retains and wicks moisture as needed to the surficial biofilm allowing the media to continuously re-wet itself.

At this time, pre-treatment of the inlet air for ammonia and hydrogen sulfide is not considered necessary. However, the biofilter design leaves open the possibility of the installation of a wet-scrubber system, should this be necessary.

Biofiltration operation will be monitored with embedded pH, temperature and moisture probes in addition to tracking system back pressure.

1.3 Description of Products and Raw Materials

ACME OCF will support the municipalities and Industrial, Commercial and Institutional (IC&I) establishments of Somewhere County. Waste types will include SSO and leaf and yard waste, as discussed below.

SSO waste will be received from the Somewhere County Integrated SSO Program. Currently, the Somewhere County Integrated SSO Program operates as a pilot study. Full implementation throughout Somewhere County is scheduled for May 2011. Once launched, approximately 50,200 households and 500 small businesses will receive weekly curbside collection of food and non-recyclable paper waste or will have access to five SSO depot drop-off stations located throughout Somewhere County.

Organic waste acceptable in the Somewhere County Integrated SSO Program are shown below.

ACCEPTABLE SSO WASTE IN SOMEWHERE COUNTY

Organic Waste Type	Description
Food Waste	fruits and vegetables (whole/raw/cooked/peelings); tea bags, coffee grinds and filters; meat, fish, shellfish and poultry (raw/cooked/bones), bread, toast, cereals, oatmeal and other grain products; nuts; salad & salad dressing; rice; pasta; chips, popcorn, chocolate and other snack food; peanut butter, gravy and condiments
Baking Wastes	spoiled baked goods; flour and other dry ingredients; spices; raw batter; sugar
Dairy Products	yogurt; sour cream; cheese; eggs; powdered milk
Paper Fibres	moulded pulp paper egg cartons and beverage trays; paper towels; tissues; napkins; non-coated/waxed paper plates and cups
Other	hair; sawdust; wood shavings; dryer lint; house plants; pumpkins

Unacceptable wastes include cooked or raw grease and fats, diapers, cleaning wipes, feminine hygiene products, cat litter, pet waste, animal bedding, animal carcasses, medical waste (e.g., gauze bandages), take-out cups, cigarette butts and ashes.

Currently, the Somewhere County Integrated SSO Program will only pick up waste in bulk or in kraft bags. Waste placed in plastic bags, including compostable and/or biodegradable bags will not be picked up. Based on discussions with the Somewhere County Waste Management Task Force, it is not anticipated that collection policies will be revised to allow the use of plastic bags for collection, biodegradable or otherwise.

The Municipality of Othertown is currently approved to operate a composting facility that will provide capacity for only 50% of Somewhere County's projected SSO waste tonnages. The proposed ACME OCF will support the Somewhere County Integrated SSO Program, providing composting capacity to meet outstanding demand. It has been designed to meet peak seasonal demands and long term projects for SSO and leaf and yard waste generation within Somewhere County.

The sources of leaf and yard waste will include:

- seasonal municipal collection programs within Somewhere County; and
- IC&I establishments, such as landscaping companies.

The clean wood and brush, and leaf and yard waste types to be accepted includes leaves, brush, branches, hedge and tree trimmings (max. 1.5 m in length), Christmas trees (decorations removed), house and garden plants and trimmings, sod, and tree stumps. Leaf and yard waste will only be accepted if dropped off in bulk form or in kraft bags. Leaf and yard waste in plastic bags, biodegradable or otherwise, will not be accepted.

The maximum amount of waste received on any one day is 200 tonnes. The average amount of waste received is 40 tonnes per day. SSO waste will be received in uniform amounts throughout the year. The wood and LY waste receipt will be seasonal with an anticipated maximum receipt of 2,500 tonnes during the month of October.

Product usages and process information are provided in greater detail in Appendix A. Refer to Table 1, which tabulates the individual sources of emissions at the Facility.

1.4 Process Flow Diagram

Refer to Figure 4 for a graphical representation of the composting processes at the Facility.

1.5 Operating Schedule

The Facility will be open approximately 312 days per year with hours of operation as follows:

Monday to Friday	07:00 to 19:00 hours
Saturday	07:00 to 14:00 hours

Sunday	closed

The Facility will be closed on all statutory holidays.

The receipt of organic waste will be restricted to the following hours:

Monday to Friday	08:00 to 17:00 hours
Saturday	08:00 to 12:00 hours

1.6 Facility Production Limit

Based on available waste quantity information provided by the municipalities of Somewhere County and the results of the Somewhere County Integrated SSO Program, it is estimated that over the next 5 years ACME OCF will capture approximately 12,000 – 15,000 tonnes/year of organic wastes, comprising of:

- 4,000 - 6,000 tonnes/year of SSO waste; and
- 7,500 - 8,000 tonnes/year of leaf and yard waste
- 500 – 1,000 tonnes/year of clean wood and brush

2.0 INITIAL IDENTIFICATION OF SOURCES AND CONTAMINANTS

This section provides an initial identification of all of the sources and contaminants emitted at the Facility, as required by subparagraphs 2 to 4 of s.26 (1) of O.Reg. 419/05.

There may be general ventilation from the Facility that only discharges uncontaminated air from the workspaces or air from the workspace that may include contaminants that come from commercial office supplies, building maintenance products or supplies and activities; these types of ventilation sources are considered to be negligible and were not identified as sources at the Facility.

General ventilation located in the process area that does not vent process emissions is also considered negligible.

2.1 Sources and Contaminants Identification Table

Table 1 tabulates all the emission sources at the Facility.

The expected contaminants emitted from each source are also identified in Table 1. Each of the identified sources has been assigned a source reference number.

The location of the discharges from each of the sources is presented on Figure 3 as identified by the source reference number.

3.0 ASSESSMENT OF SIGNIFICANCE OF SOURCES AND CONTAMINANTS

This section provides information and rationale for the identification of negligible contaminants and sources. This allows facilities with a large quantity of sources and contaminants to focus on a more detailed analysis of emissions and POI concentrations of the significant contaminants and sources.

As required by paragraph 2 of s.26(1) of O.Reg. 419/05, Table 1 contains a list of all contaminants that are discharged from the property and for each of those contaminants, a list of all the sources of contaminants that are located on the property.

In accordance with s.8 of O.Reg. 419/05, some of the contaminants and sources listed in Table 1 have been identified as negligible, and have therefore been excluded from further analysis and from air dispersion modelling.

3.1 Identification of Negligible Contaminants and Sources

Of all the sources listed in Table 1, six (6) sources have been identified as insignificant. As required by paragraph 3 of s.26(1) of O.Reg. 419/05, an explanation of how it was determined that each source of contaminant discharges a negligible amount of the contaminant is also provided in the table.

The remaining sources are significant. These sources will be included in the dispersion modelling for the Facility.

Some contaminants from sources that are considered significant have been identified as negligible. Each negligible contaminant from a significant source is identified in Table 1.

3.2 Rationale for Assessment

For each source or contaminant in Table 1 that has been identified as being negligible there is an accompanying documented rationale. The technical information required to substantiate the argument that each of the identified sources or contaminants is negligible is presented in Appendix B.

4.0 OPERATING CONDITIONS, EMISSIONS ESTIMATING AND DATA QUALITY

This section provides a description of the operating conditions used in the calculation of the emission estimates and an assessment of the data quality of the emission estimates for each significant contaminant from the Facility as required by subparagraphs 6 and 7 of s.26 (1) of O.Reg. 419/05.

4.1 Description of Operating Conditions

Paragraph 1 of s.10 of O.Reg. 419/05 states that the approved dispersion model must be used with operating conditions that result in the maximum POI concentration for each significant contaminant, according to the averaging period for the relevant MOE POI Limit corresponding to that contaminant. The operating condition that corresponds to the maximum POI concentration may occur when the Facility is at the maximum production level or running at a lower production level or the process is in transition.

In preparing this ESDM Report, all operating scenarios for all the significant sources at the Facility were assessed for the contaminants that are relevant to this application for a C of A under Section 9 of the EPA. For each significant contaminant, and according to the averaging period for the relevant MOE POI Limit corresponding to that contaminant, the operating scenario used for this Facility that results in the maximum POI concentration is the scenario where all the significant sources are operating simultaneously at their individual maximum rates of production with the exception of the emergency generator.

In accordance with paragraph 6 of s.26(1) of O.Reg. 419/05, Appendix A of this ESDM Report includes a description of the operating condition for each contaminant that is emitted in significant amounts, including a description of the operating conditions of the significant sources that result in the maximum POI concentration for the contaminant, ensuring that the operating conditions correspond to the averaging period of the MOE POI Limit(s).

4.2 Explanation of the Methods Used to Calculate Emission Rates

The maximum 1-hour or 24-hour emission rates for each significant contaminant emitted from the significant sources were calculated in accordance with requirements of the ESDM Procedure Document.

The emission rate for each significant contaminant emitted from a significant source was estimated and the methodology for the calculation is documented in Table 2.

4.3 Sample Calculations

The technical rationale, including sample calculations, required to substantiate the emission rates presented in Table 2 is documented in Appendix A.

4.4 Assessment of Data Quality

This section provides an assessment of the data quality of the emission estimates for each significant contaminant from the Facility as required by subparagraph 7iii of s.26(1) of O.Reg. 419/05.

The assessment of the data quality of the emission rate estimates for each significant contaminant emitted from the significant sources was performed in accordance with the requirements of subparagraph 7iii of s .26(1) of O.Reg. 419/05.

For each contaminant the emission rate was estimated and the data quality of the estimate is documented in Table 2. The assessment of data quality for each source listed in Table 2 is documented in Appendix A.

All the emission rates listed in Table 2 have been estimated using the highest quality of data available and correspond to the operating scenario where all significant sources are operating simultaneously at their individual maximum rates of production. Therefore, emission rate estimates listed in Table 2 are not likely to be an underestimate of the actual emission rates and use of these emission rates will result in a calculated concentration at POI greater than the actual concentrations.

5.0 SOURCE SUMMARY TABLE AND SITE PLAN

This section provides the table required by subparagraph 8 and the site plan required by subparagraph 9 of s.26 (1) of O.Reg. 419/05.

5.1 Source Summary Table

The emission estimates for each source of significant contaminants are documented in Table 2 in accordance with requirements of subparagraph 8 of s.26 (1) of O.Reg. 419/05.

5.2 Site Plan

The locations of the emission sources listed in Table 2 are presented on Figure 3; the location of each of the sources is specified with the source reference number. The location of the property-line is indicated on Figure 3. The location of each source is provided in Table 2.

6.0 DISPERSION MODELLING

This section provides a description of how the dispersion modelling was completed forall contaminants, except odour, for the Facility to predict the maximum POI concentrations, as required by subparagraphs 10 to 13 of s.26 (1) of O.Reg. 419/05. The dispersion modelling methodology for odour is presented in Appendix E.

Per the Speed-Up Request, the Facility is subject to s.20 of O.Reg. 419/05 and as such, the assessment of compliance with Schedule 3 standards was carried out with the aid of the USEPA AERMOD atmospheric dispersion model.

The dispersion modelling was conducted in accordance with the MOE's "Air Dispersion Modelling Guideline for Ontario" dated March 2009, PIBS 5165e (ADMGO). A general description of the input data used in the dispersion model is provided below and summarized in Table 3.

The AERMOD modelling system has been identified by the MOE as one of the approved dispersion models under O.Reg. 419/05, and currently includes the Plume Rise Model Enhancements (PRIME) algorithms for assessing the effects of buildings on air dispersion.

The use of a more refined model, such as AERMOD, is necessary when assessing air quality against Schedule 3 standards. It is also applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources).

The AERMOD modelling system is made up of the AERMOD dispersion model, the AERMET meteorological pre-processor and the AERMAP terrain pre-processor. The following approved dispersion model and pre-processors were used in the assessment:

- AERMOD dispersion model (v. 09292);
- AERMAP surface pre-processor (v. 09040); and
- BPIP building downwash pre-processor (v. 04274).

AERMET was not used in this assessment, as a pre-processed MOE meteorological dataset was used.

6.1 Dispersion Modelling Input Summary Table

A description of the way in which the approved dispersion model was performed is included in Table 3. This table meets both the requirements of s.26 (1) 11 and Sections 8-17 of O.Reg. 419/05 and follows the format provided in the ESDM Procedure Document.

As per Section 4.5 of the ADMGO, the significant sources at the Facility were classified as either point, area, or volume sources. The source data required for each source was determined according to the procedures provided in ADMGO and presented in the Dispersion Modelling Plan (Figure 5). Furthermore, the dispersion modelling input parameters are summarized in Table 4. Although not required by s.26 (1) of O.Reg. 419/05, this table simplifies the data presentation.

All sources, with the exception of the windrows (Source S-4) were modelled as point sources. The windrows emissions were modelled as area sources.

6.2 Coordinate System

The Universal Transverse Mercator (UTM) coordinate system, as per Section 5.2.2 of the ADMGO, was used to specify model object sources, buildings and receptors. All coordinates were defined in the North American Datum of 1983 (NAD83).

All sources, buildings, and property line coordinates are provided on Figure 5.

6.3 Meteorology and Land Use Data

Subparagraph 10 of s.26 (1) of O.Reg. 419/05 requires a description of the local land use conditions if meteorological data described in paragraph 2 of s.13 (1) of O.Reg. 419/05 was used. The AERMOD model was run using a MOE pre-processed 5-year dispersion meteorological data set (i.e., surface and profile files) last updated in 2007, in accordance with paragraph 1 of s.13 (1) of O.Reg. 419/05 for all contaminants except for odour. The meteorological conditions, which would result in the maximum concentration, would typically be stable atmospheric conditions such as an inversion with low wind speed. The maximum hour or averaging period out of 43,800 hours of data would not occur at each grid point simultaneously since the wind can only blow in one direction during one hour.

A land use zoning plan is provided on Figure 2. Figure 2 also illustrates the extents of the Site property boundary and provides the zoning of adjacent land uses. The Site is located in a predominantly agricultural (A) zoned area, however, the Site is zoned industrial (M). The land use type used for AERMOD dispersion modelling was “Crops”.

There are no sensitive land uses on the property, such as childcare facilities, senior citizen's residences, long-term care, or educational facilities.

6.4 Terrain

Terrain data used in this assessment was obtained from MOE (7.5-minute format) and is illustrated on Figure 8. DEM files used in this assessment are:

- OTHERT1_3.DEM
- OTHERT1_4.DEM
- OTHERT2_3.DEM
- OTHERT2_4.DEM

6.5 Receptors

For contaminants other than odour, receptors were chosen based on recommendations provided in Section 7.1 of the ADMGO, which is in accordance with s.14 of O.Reg. 419/05. Specifically, a nested receptor grid, based on an area that is bounded by a rectangle than encloses every source of contaminants, and spaced out as follows:

- 20 m spacing within a distance of 200 m from the bounding rectangle;
- 50 m spacing from 200 m to 500 m from the bounding rectangle;
- 100 m spacing from 500 m to 1000 m from the bounding rectangle;
- 200 m spacing from 1,000 m to 2,000 m from the bounding rectangle; and
- 500 m spacing from 2,000 m to 5,000 m from the bounding rectangle.

In addition to the nested receptor grid, receptors were also placed every 10 metres along the property line. The area of modelling coverage is illustrated on Figure 8.

There is no child care facility, health care facility, senior's residence, long-term care facility or an educational facility located at the Facility. As such, same structure contamination was not considered. For information purposes the nearest residence is located approximately 490 m from the Facility's property line.

For odour modelling information, refer to Appendix E.

6.6 Building Downwash

Building wake effects were considered in this assessment using the USEPA Building Profile Input Program (BPIP-PRIME), another pre-processor to AERMOD. The inputs into this pre-processor include the co-ordinates and heights of the buildings and stacks. The output data from BPIP is used in the AERMOD building wake effect calculations.

The PRIME plume rise algorithms include vertical wind shear calculations (important for buoyant releases from short stacks [i.e., stacks at release heights within the recirculation zones of the buildings]). The PRIME algorithm also allows for the wind speed deficit induced by the building to change with respect to the distance from the building. These factors improve the accuracy of

predicted concentrations within building wake zones that form in the lee of buildings. Refer to Figure 9 which demonstrates the BPIP inputs.

The BPIP input file is provided in Appendix C.

6.7 Deposition

AERMOD has the capability to account for wet and dry deposition of substances that would reduce ground level concentrations at POIs. However, the deposition algorithm has not been implemented as only regulatory defaults have been used.

6.8 Averaging Time and Conversions

The shortest time scale that AERMOD predicts is a 1-hour average value. Per the Speed Up Request, Schedule 3 standards of O.Reg. 419/05 apply to this Facility; many of these standards are based on 1-hour and 24-hour averaging times, which are averaging times that are provided by AERMOD. In cases where a standard has an averaging period less than 1-hour (e.g., 10-minute), a conversion to the appropriate averaging period was completed using the MOE recommended conversion factors, as documented in the ADMGO.

All contaminants modeled have 24-hour averaging time emissions, with the exception of nitrogen oxides, carbon monoxide, TRS and odour. The emission rates for the alternative averaging time is the same as the 24-hour averaging time; it was not necessary to perform separate model runs.

6.9 10- Minute Averaging Standards Modelling

Short-term 10-minute dispersion modelling was performed according to methods described in the Ontario Ministry of the Environment's (MOE's) technical bulletin "Methodology for Modelling Assessments of Contaminants with 10-Minute Average Standards and Guidelines under O.Reg. 419/05" (MOE SDB, April 2008).

As per the April 2008 technical bulletin, a series of models were performed to determine odour compliance, as described below.

Tier 1 - An air dispersion model, constructed as prescribed by O.Reg. 419/05, using a tiered receptor grid, is modelled for a 1-hour averaging period at ground level. All modelled results are then converted to a 10-minute averaging period. The removal of meteorological anomalies is allowed to determine the maximum compliance odour value. After this is done, if the odour-based standard is not exceeded at any modelled point, no further modelling is required. If the odour-based standard is exceeded, further modelling is required.

Tier 2 - An air dispersion model, with discrete receptors located at all locations where human activities may occur, is modelled for a 1-hour averaging period. All modelled results are then converted to a 10-minute averaging period. The removal of meteorological anomalies, as identified previously, is not allowed to determine the maximum compliance odour value. After this is done, if the odour-based standard is not exceeded at any discrete receptor, no further modelling is required. If the odour-based standard is exceeded, further modelling is required.

Tier 3 – An air dispersion model, with a discrete receptor located where human activities may occur, is modelled for a 1-hour averaging period. All modelled results are then converted to a 10-minute averaging period. A frequency analysis is then performed to determine the frequency of time the discrete receptor is below 1 OU..

For additional information please refer to the odour modelling information provided in Appendix E.

6.10 Dispersion Modelling Options

The options used in the AERMOD dispersion model are summarized in the table below.

Modelling Parameter	Description	Used in the Assessment?
DFAULT	Specifies that regulatory default options will be used	Yes
CONC	Specifies that concentration values will be calculated	Yes
DDPLETE	Specifies that dry deposition will be calculated	No
WDPLETE	Specifies that wet deposition will be calculated	No
FLAT	Specifies that the non-default option of assuming flat terrain will be used	No, the model will use elevated terrain as detailed in the AERMAP output
NOSTD	Specifies that the non-default option of no stack-tip downwash will be used	No
AVERTIME	Time averaging periods calculated	1-hr, 8hr, 24-hr
URBANOPT	Allows model to incorporate the effects of increased surface heating from an urban area on pollutant dispersion under stable atmospheric conditions	No
URBANROUGHNESS	Specifies the urban roughness length (m)	Not Applicable
BETA	Specifies the use of capped and horizontal stack release algorithms within AERMOD	No
FLAGPOLE	Specifies that receptor heights above local	No

Modelling Parameter	Description	Used in the Assessment?
	ground level are allowed on the receptors	

6.11 Dispersion Modelling Input and Output files

The dispersion model input and output data are summarized in Table 3. An example output file from AERMOD is provided in Appendix C.

Electronic copies of all input and output files are provided in Appendix C on compact disc (CD).

7.0 EMISSION SUMMARY TABLE AND CONCLUSIONS

This section provides the table required by subparagraph 14 of s.26 (1) of O.Reg. 419/05 and provides an interpretation of the results as required by the ESDM Procedure Report.

7.1 Emission Summary Table

A POI concentration for each significant contaminant emitted from the Facility was calculated based on the emission rates listed in Table 2 and the output from the approved dispersion model presented in Appendix C. The results are presented in Table 5. This table follows the format provided in the ESDM Procedure Document

The POI concentrations listed in Table 5 were compared against criteria listed in the publication "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality" dated February 2008.

Given that the POI concentrations for all contaminants are below their applicable Ministry limits, meteorological anomalies (as described in the ADMGO) were not considered.

For the contaminants with a 10-minute averaging period, compliance was conservatively assessed at the property line, with the exception of odour which was assessed at the sensitive receptor.

Of the eight (8) contaminants assessed, all have limits in the List of MOE POI Limits; all the predicted POI concentrations are below the corresponding limits. The highest maximum POI concentration is 59% of the 24-hour limit for Nitrogen Oxides.

An Odour Impact Assessment for the Proposed Facility has been provided as an appendix to this application. The maximum odour level at the sensitive receptor is predicted to be 2.19 OU. A frequency of exceedance analysis at this receptor indicated a maximum annual exceedance of 0.42% of the time (model year 1999) which is less than the acceptable frequency of exceedance of 0.5% of the time as proposed in the MOE Technical Bulletin "Methodology for Modelling Assessments of Contaminants with 10-Minute Average Standards and Guidelines" under O.Reg. 419/05."

7.2 Assessment of Contaminants with no MOE POI Limits

Subparagraph 14 subsection viii of s.26 (1) of O.Reg. 419/05 requires an indication of the likelihood, nature and location of any adverse effect if the contaminant is not listed in any of Schedules 1, 2, and 3.

Contaminants released by the Facility that are not found on the List of MOE POI Limits are considered to be "Contaminants with No Ministry POI Limits". There are no 'Contaminants with No Ministry POI Limits' at the Facility.

7.3 Conclusions

This ESDM Report was prepared in accordance with s.26 of O.Reg. 419/05. In addition guidance in the ESDM Procedure Document was followed, as applicable.

ACME Waste Inc. is proposing to construct and operate ACME Othertown Composting Facility (ACME OCF) to accommodate the composting of source separated organics (SSO) (food waste and non-recyclable tissue), clean wood and brush (wood) and leaf and yard waste (LY). A POI concentration for each significant contaminant emitted from the Facility was determined using the conservative emission rates and an approved atmospheric dispersion model; the results are presented in Table 5. The POI concentrations listed in Table 5 were compared against the MOE POI limits. The predicted POI concentrations for the contaminants listed in Table 5- Emission Summary Table are below Reg. 419/05 corresponding limits. The highest maximum POI concentration is 59% of the 24-hour limit for Nitrogen Oxides.

This ESDM Report demonstrates that the Facility can operate in compliance with s.20 of O.Reg. 419/05. P.E.S. Stacks recommends that at Consolidated C of A (Air & Noise) be issued for the Facility.

Table 1

Source and Contaminant Identification Table
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Source ID	*Source Description*	*Location*	*Expected Contaminants*	*Significant? (Yes/No)*	*Rationale*
S-1	Biofilter treating odour from the Enclosed Channel Composting Operations Building, Front End Loaders (two)	Enclosed Channel Operations Building	Particulate Matter Ammonia Odour Total Reduced Sulfur Products of Mobile Diesel Combustion	Yes Yes Yes Yes Yes	
S-2	Standby Emergency Generator (150 kW)	Enclosed Channel Operations Building	Products of Diesel Combustion	Yes	Only NOx (See Appendix B)
S-3A	Wood Tub Grinder - Grinding Operations	Screening/Chipping/Grinding Area	Particulate Matter	No	Insignificant realtive to total emissions (See Appendix B)
S-3B	Wood Tub Grinder - Diesel Engine	Screening/Chipping/Grinding Area	Products of Diesel Combustion	Yes	
S-4A	Active Windrows (Leaf and Yard Waste)	Active Windrows on East Side of Property	Particulate Matter Odour	No Yes	Insignificant realtive to total emissions (See Appendix B)
S-4B	Curing Piles	Curing Piles, North Side of Property	Particulate Matter Odour	No Yes	Insignificant realtive to total emissions (See Appendix B)
S-5A, S-5B	Stump/Leaf and Yard Storage and Preprocessing Areas	Storage Areas	Particulate Matter Odour	No Yes	Insignificant realtive to total emissions (See Appendix B)
S-5C	Finished Compost and Screening / Chipping Area	Storage Areas	Particulate Matter Odour	No No	Insignificant realtive to total emissions (See Appendix B) Material does not decompose in these areas (See Appendix B)
S-6	Natural Gas Fired Combustion Equipment (H1a, H1b, H2)	Administration and Maintenance Building	Hot water heater, HVAC units	No	Exempt from C of A (See Appendix B)
S-7	Screener	Screening/Chipping/Grinding Area	Particulate Matter Odour	No No	Insignificant realtive to total emissions (See Appendix B) Insignificant realtive to total emissions (See Appendix B)
S-8	Shredder	Screening/Chipping/Grinding Area	Particulate Matter Odour	No No	Insignificant realtive to total emissions (See Appendix B) Insignificant realtive to total emissions (See Appendix B)
	Roads, Parking Lot		Dust	No	Not listed in Table 7-2 or 7-3 of Section 7.4 of the ESDM Procedure Document (See Appendix B)

Table 2

Source Summary Table
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

		Source Data								*Emission Data*				
Contaminant	***CAS No.***	***Source ID***	***Source Description***	***Stack Flow Rate*** (Am3/s)	***Stack Exit Gas Temperature*** (C)	***Stack Inner Diameter*** (m)	***Stack Height Above Grade*** (m)	***Stack Height Above Roof*** (m)	***Source Coordinates (x,y)*** (UTM)	***Maximum Emission Rate*** (g/s)	***Averaging Period*** (hours)	***Emission Estimation Technique***	***Emission Data Quality***	***% of Overall Emissions*** (%)
Nitrogen Oxides	10102-44-0	S-1	Composting Operations Building-Diesel Front End Loaders	7.55	40	0.8	12	4	546899.34, 4882151.34	1.80E+00	1,24	EF	Marginal/Uncertain	70%
		S-3B	Wood Tub Grinder - Diesel Engine	0.53	625	0.1	4.26	0.46	546942.98, 4882260.77	7.86E-01	1,24	EF	Marginal/Uncertain	30%
Nitrogen Oxides(1)	10102-44-0	S-2	Emergency Generator	0.53	625	0.1	2	0.46	546850.95, 4882161.21	7.86E-01	0.5	EF	Average	100%
Carbon Monoxide	630-08-0	S-1	Composting Operations Building-Diesel Front End Loaders	7.55	40	0.8	4	12	546899.34, 4882151.34	3.89E-01	0.5	EF	Marginal/Uncertain	70%
		S-3B	Wood Tub Grinder - Diesel Engine	0.53	625	0.1	4.26	0.46	546942.98, 4882260.77	1.69E-01	0.5	EF	Marginal/Uncertain	30%
Sulphur Oxides	7446-09-5	S-1	Composting Operations Building-Diesel Front End Loaders	7.55	40	0.8	NA	12	546899.34, 4882151.34	1.19E-01	1,24	EF	Marginal/Uncertain	70%
(as Sulphur Dioxide)		S-3B	Wood Tub Grinder - Diesel Engine	0.53	625	0.1	4.26	0.46	546942.98, 4882260.77	5.20E-02	1,24	EF	Marginal/Uncertain	30%
Ammonia	7664-41-7	S-1	Composting Operations Building - Processing Operations	7.55	40	0.8	4	12	546899.34, 4882151.34	2.27E-01	24	EC	Average	100%
Hydrogen Sulfide	7783-06-4	S-1	Composting Operations Building - Processing Operations	7.55	40	0.8	4	12	546899.34, 4882151.34	7.55E-04	10 min, 24	EC	Average	100%
Mercaptans	NA	S-1	Composting Operations Building - Processing Operations	7.55	40	0.8	4	12	546899.34, 4882151.34	7.55E-03	10min, 24	EC	Average	100%
Odour	NA	S-1	Composting Operations Building - Processing Operations	7.55	40	0.8	4	12	546899.34, 4882151.34	9.06E+03 (OU m3/s)	10 min	EC	Marginal/Uncertain	--
		S-4A	Active Windrows (Leaf and Yard Waste)	NA	NA	NA	3	NA	547018.01, 4882250.03	0.1 (OU/m2/s)	10 min	EC	Average	--
		S-4B	Curing Piles	NA	NA	NA	3	NA	546975.08, 4882296.33	0.4(OU/m2/s)	10min	EC	Average	--
		S-5A	Stump/Leaf & Yard Waste Storage Area	NA	NA	NA	3	NA	546995.71, 4882165.58	0.1 (OU/m2/s)	10 min	EC	Average	--
		S-5B	Leaf & Yard Waste Pre-Processing Area	NA	NA	NA	3	NA	546983.05, 4882190.46	0.1 (OU/m2/s)	10 min	EC	Average	--
Particulate Matter	NA	S-1	Composting Operations Building - Processing Operations	7.55	40	0.8	4	12	546899.34, 4882151.34	3.40E-04	24	EC	Marginal/Uncertain	0.18%
		S-1	Composting Tunnel Exhaust-Diesel Front End Loaders	7.55	40	0.8	4	12	546899.34, 4882151.34	1.28E-01	24	EF	Marginal/Uncertain	69.54%
		S-3B	Wood Tub Grinder - Diesel Engine	0.53	625	0.1	4.26	0.46	546942.98, 4882260.77	5.58E-02	24	EC	Average	30.28%
Total Reduced Sulfur	NA	S-1	Composting Operations Building - Processing Operations	7.55	40	0.8	NA	12.00	546884.28, 4882156.95	8.31E-03	10 min, 24	EC	Average	100.00%

Notes:
(1)Nitrogen Oxides emissions from the Emergency Generator are compared to a different standard than those from process emissions therefore, they are represented separately on the table.

EF - Emission Factor
EC - Engineering Calculation
NA - Not applicable

Table 3

Dispersion Modelling Input Summary Table
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Relevant Section of the Regulation	***Section Title***	***Description of How the Approved Dispersion Model Was Used***
Section 8	Negligible Sources	Sources of contaminants that were considered negligible were explicitly identified, and therefore were not modelled, in accordance with s.8 of O.Reg 419. See Table 1-Sources and Contaminants Identification Table and Appendix B of the ESDM Report for more information.
Section 9	Same Structure Contamination	Not Applicable as ACME Inc. is the only tenant occupying the building, and does not have a child care facility, health care facility, senior's residence, long-term care facility or an educational facility located at the Facility.
Section 10	Operating Conditions	All equipment was assumed to be operating at the maximum production rates at the same time/ See Section 4.1 and Appendix A of the ESDM report.
Section 11	Source of Contaminant Emission Rates	The emission rate for each significant contaminant emitted from a significant source was estimated, the methodology for the calculation is documented in Table 2 - Source Summary Table. See Section 4.1 and 4.2 of the ESDM report.
Section 12	Combined Effect of Assumptions for Operating Conditions and Emission Rates	The operating conditions were estimated in accordance with s.10(1) 1 and s.11(1) 1 of O. Reg 419 and are therefore considered to result in the highest concentration at a POI that the Facility is capable of for the contaminants emitted. See Section 4.1 and 4.2 of the ESDM Report.
Section 13	Meteorological Conditions	Othertown 5 year meteorological dataset distributed by MOE.
Section 14	Area of Modelling Coverage	Model coverage set to match MOE guidelines
Section 15	Stack Height for Certain New Sources of Contaminant	All stacks meet the requirements of s.15 and GEP.
Section 16	Terrain Data	Othertown DEM data distributed by MOE.
Section 17	Averaging Periods	The appropriate averaging periods (as defined by the regulatory limits outlined in Schedule 3 , and in the listing of the MOE Guidelines) were modelled for each contaminant.

Table 4

Dispersion Modelling Source Summary Table
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Source Data									*Emission Data*			
Source ID	***Source Description***	***Type of Source (Point/Volume/Area)***	***Stack Flow Rate*** (Am3/s)	***Stack Exit Gas Temperature*** (C)	***Diameter Stack Inner*** (m)	***Stack Height Above Grade*** (m)	***Stack Height Above Roof*** (m)	***Source Coordinates (x,y)*** (UTM)	***Contaminant***	***CAS No.***	***Maximum Emission Rate*** (g/s)	***Averaging Period*** (hours)
S-1	Composting Operations Building Exhaust	Point	7.55	40	0.8	12	4	546899.34, 4882151.34	Carbon Monoxide	630-08-0	3.89E-01	0.5
									Sulphur Oxides	7446-09-5	1.19E-01	1,24
									Ammonia	7664-41-7	2.27E-01	24
									Hydrogen Sulfide	7783-06-4	7.55E-04	10 min, 24
									Mercaptans	NA	7.55E-03	10min, 24
									Nitrogen Oxides	10102-44-0	1.80E+00	1,24
									Odour	NA	9.06E+03 OU m3/s	10 min
									Particulate Matter	NA	1.28E-01	24
									Total Reduced Sulfur	NA	8.31E-03	10 min, 24
S-2	Emergency Generator	Point	0.53	625	0.1	2	0.46	546884.46, 4882171.49	Nitrogen Oxides	10102-44-0	7.86E-01	0.5
S-3B	Wood Tub Grinder - Diesel Engine	Point	0.53	625	0.1	4.26	0.46	546942.98, 4882260.77	Nitrogen Oxides	10102-44-0	7.86E-01	1,24
									Carbon Monoxide	630-08-0	1.69E-01	0.5
									Sulphur Oxides	7446-09-5	5.20E-02	1,24
									Particulate Matter	NA	5.58E-02	24
S-4A	Active Windrows (Leaf and Yard Waste)	Area	NA	NA	NA	3	NA	547018.01, 4882250.03	Odour	NA	0.1 OU/m2/s	10 min
S-4B	Curing Piles	Area	NA	NA	NA	3	NA	546975.08, 4882296.33	Odour	NA	0.4 OU/m2/s	10 min
S-5A	Stump/Leaf & Yard Waste Storage Area	Area	NA	NA	NA	3	NA	546995.71, 4882165.58	Odour	NA	0.1 OU/m2/s	10 min
S-5B	Leaf & Yard Waste Pre-Processing Area	Area	NA	NA	NA	3	NA	546983.05, 4882190.46	Odour	NA	0.1 OU/m2/s	10 min

Table 5

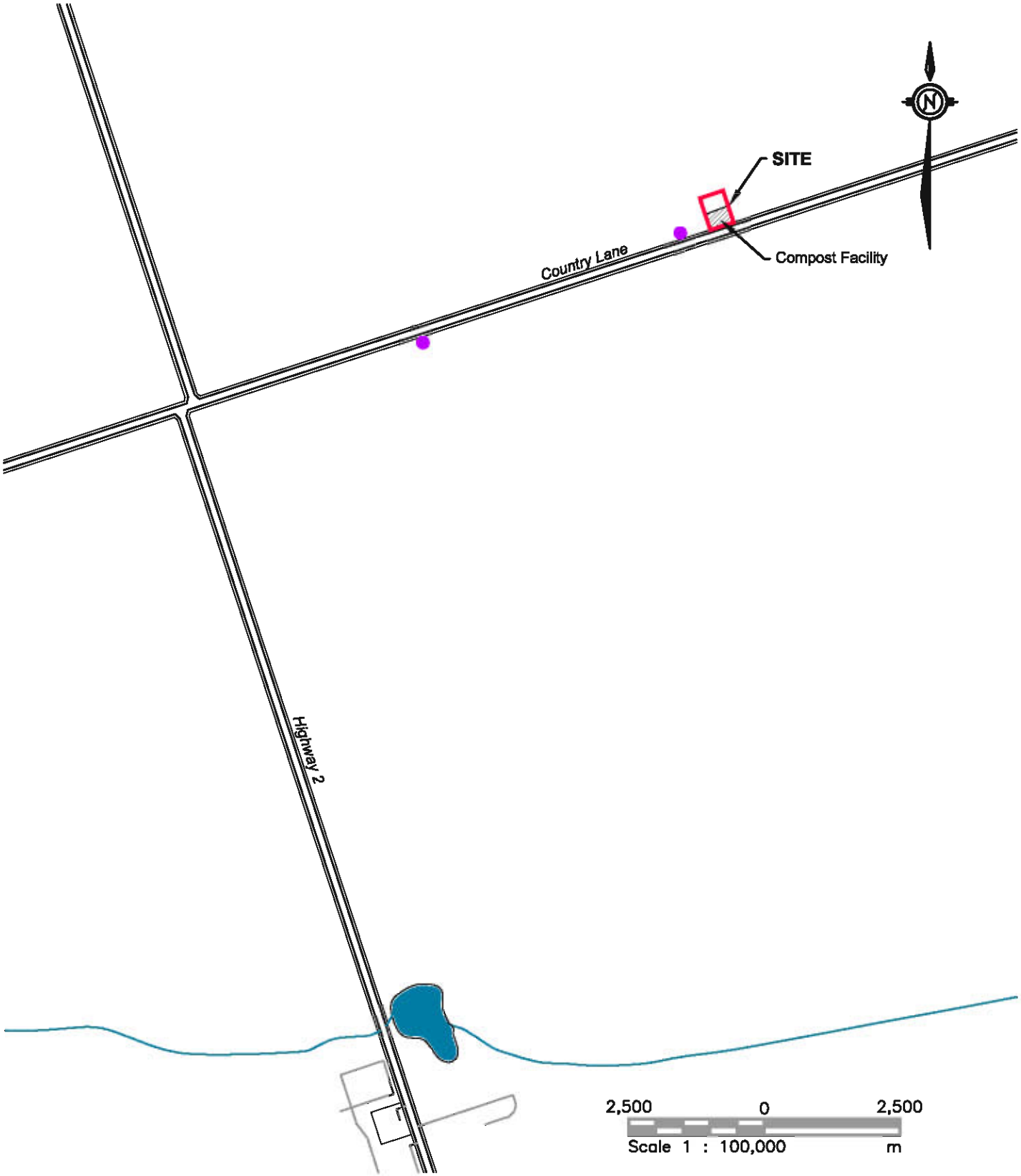
Emission Summary Table
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Contaminant	*CAS Number*	*Total Facility Emission Rate (g/s)*	*Air Dispersion Model Used*	*Maximum POI Concentration (ug/m3) (1)*	*Averaging Time Period (hrs)*	*MOE POI Limit (ug/m3)*	*Limiting Effect*	*Regulation Schedule #*	*Percentage of POI Standard (%)*
Nitrogen Oxides	10102-44-0	2.59E+00	AERMOD	2.06E+02	1	400	Health	3	51%
			AERMOD	1.18E+02	24	200	Health	3	59%
Nitrogen Oxides (emergency generator)	10102-44-0	7.86E-01	AERMOD	1.50E+01 (2)	0.5	1880 (1)	Health	NA	<1%
Carbon Monoxide	630-08-0	5.58E-01	AERMOD	5.32E+01 (2)	0.5	6000	Health	3	<1%
Sulphur Oxides (as Sulphur Dioxide)	7446-09-5	1.71E-01	AERMOD	1.36E+01	1	690	Health & Veg	3	2%
				5.44E+00	24	275	Health & Veg	3	2%
Ammonia	7664-41-7	2.27E-01	AERMOD	1.35E+01	24	100	Health	3	13%
Hydrogen Sulfide	7783-06-4	7.55E-04	AERMOD	--	Included in TRS	--	--	--	--
Mercaptans	NA	7.55E-03	AERMOD	--	Included in TRS	--	--	--	--
Odour(3)	NA	9.06E+03 (OU m3/s)	AERMOD	2.19E+00 (OU)(4)	10 min	1 OU (6)	Odour	NA	NA
	NA			<1 (99.5%) (5)	10 min	1 OU (6)	Odour	NA	--
Particulate Matter	NA	1.84E-01	AERMOD	1.46E+01	24	120	Visibility	3	12%
Total Reduced Sulfur (TRS)	NA	8.31E-03	AERMOD	2.64E-01	24	7	Health	3	4%
			AERMOD	1.09E+00(2)	10 min	13	Odour	3	8%

Notes:

Notes on Column labelled Regulation Schedule # : 3 refers to Standards in Schedule 3 of O. Reg. 419/05
NA- Not available

(1) One-hour GLC converted to 0.5 hr GLC using conversion factor of 1.2 and converted to 10 minute using a conversion factor of 1.65.
(2) Standby generator NOx allowable POI limit of 1,880 ug/m3 per 0.5hr period
(3) Local meterological data used for odour dispersion modelling.
(4) The odour value represents the maximum predicted 10-minute 100th percentile value at any sensitive receptor
(5) Refer to Table 3 (Appendix E) for Frequency analysis.
(6) Note that 1 OU is not a regulation criteria, however it is a guideline value typically used by the MOE.



LEGEND

- NOISE RECEPTOR / SENSITIVE RECEPTOR
- ROAD
- PROPERTY BOUNDARY

PROJECT

ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

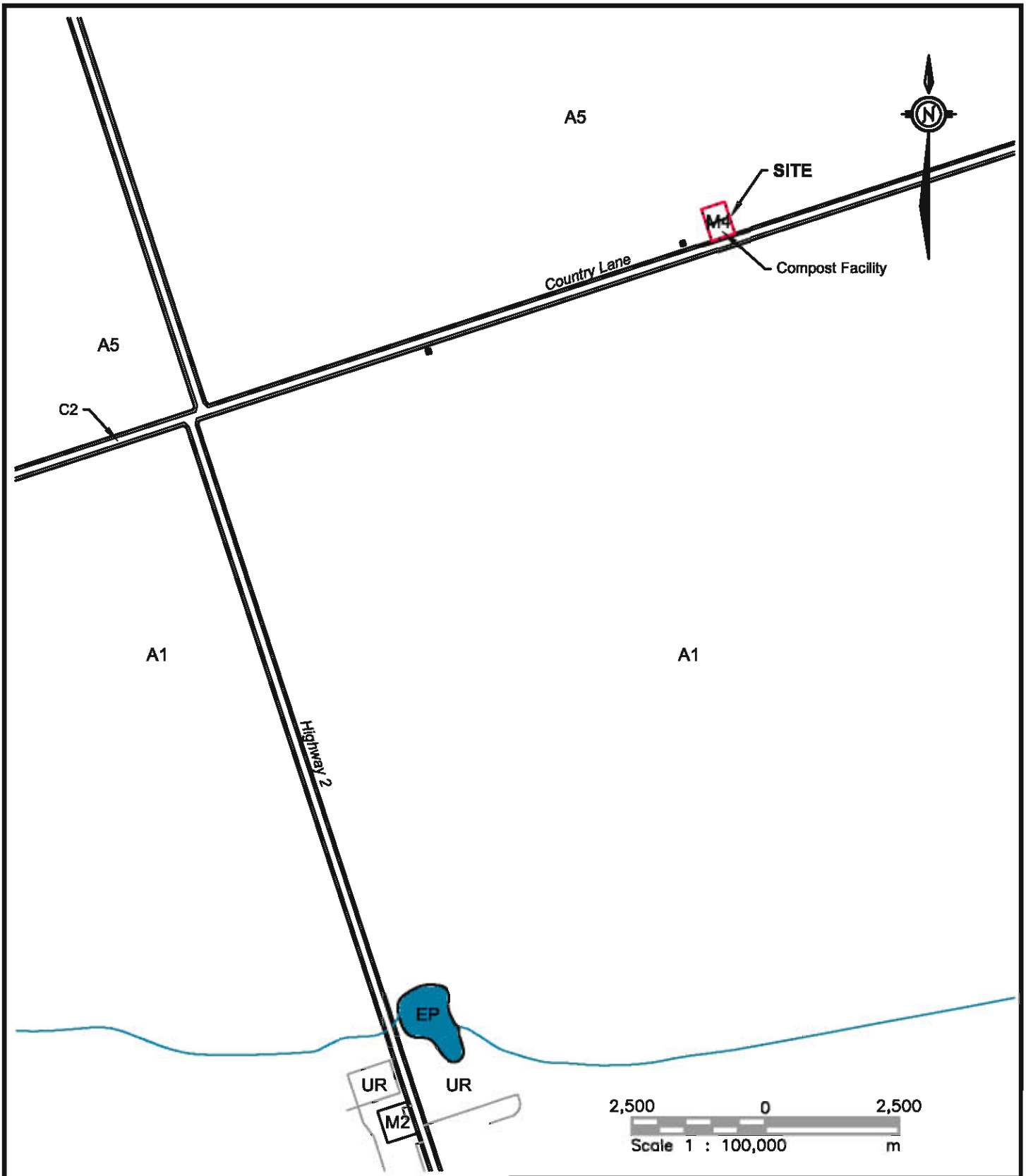
SITE LOCATION PLAN

STACKS P.E.S. Inc.

PROJECT No.		53469-02	FILE No.	(003)GN-WA001
DESIGN	JC	FEB. 1/2010	SCALE AS SHOWN	REV.
CADD	BYO	FEB.10/2010		
CHECK	TB	FEB.10/2010		
REVIEW	TB	FEB.10/2010		

FIGURE 1

53469-02(003)GN-WA001 FEB 10/2010



LEGEND

A1	AGRICULTURAL
A5	RESTRICTED AGRICULTURAL
C2	HIGHWAY COMMERCIAL
EP	ENVIRONMENTAL PROTECTION
M2	INDUSTRIAL MIXED
M4	DISPOSAL INDUSTRIAL
UR	URBAN RESIDENTIAL

PROJECT

ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

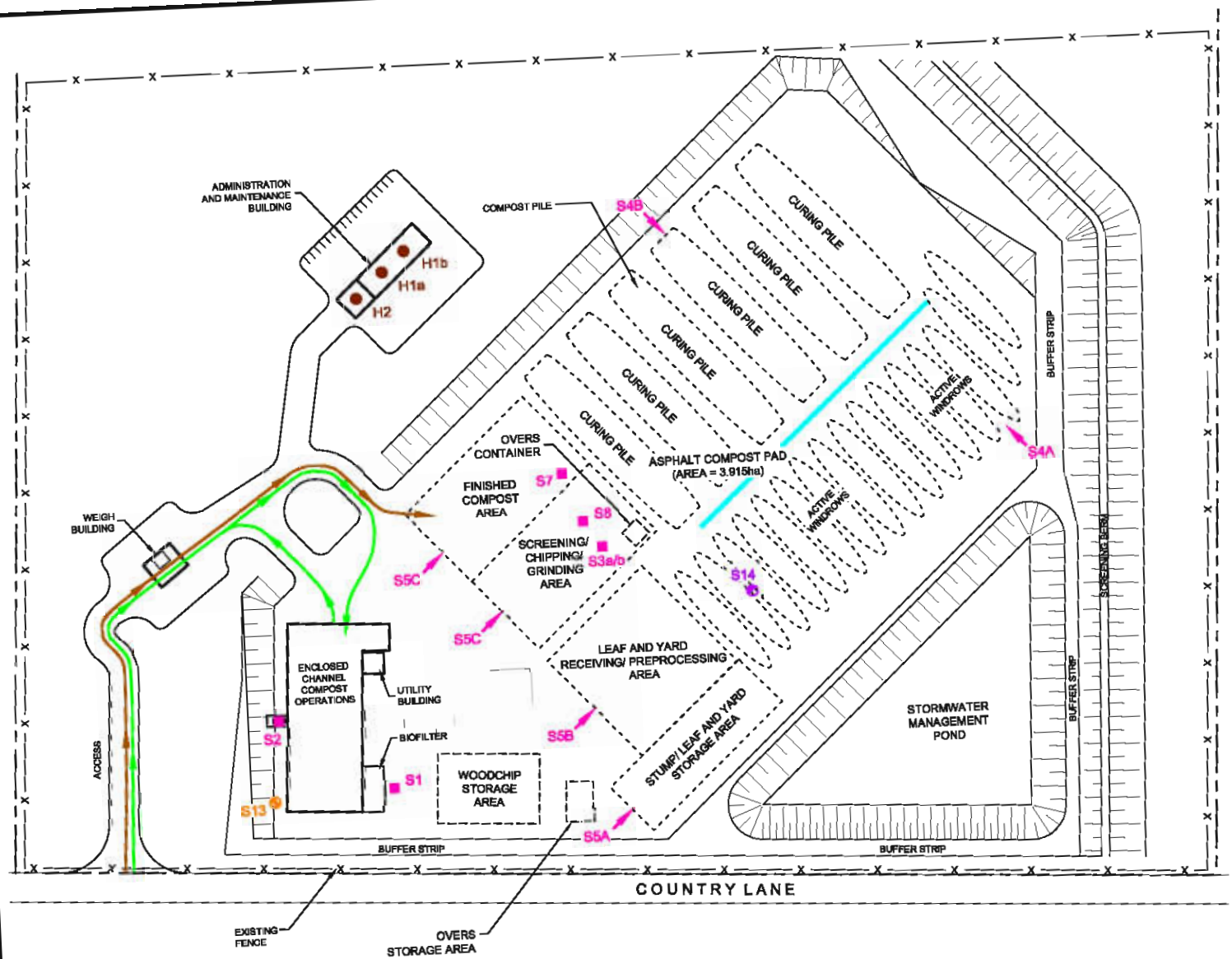
LAND USE ZONING DESIGNATION PLAN

STACKS P.E.S. Inc.

PROJECT No.	53469-02		FILE No.	(003)GN-WA002
DESIGN	JC	FEB.1/2010	SCALE AS SHOWN	REV.
CADD	BYO	FEB.10/2010		
CHECK	TB	FEB.10/2010		
REVIEW	TB	FEB.10/2010		

FIGURE 2

53469-02(003)GN-WA002 FEB 10/2010



LEGEND

- PROPERTY BOUNDARY
- FENCE LINE / SITE BOUNDARY
- ROAD
- WATER TRUCK FOR ACTIVE WINDROWS
- SHIPPING TRUCK TO FINISHED COMPOST
- SHIPPING TRUCK TO LEAF & YARD WASTE
- H1a HVAC STACK
- S1 AIR EMISSION SOURCE
- S14 FRONT-END LOADER - ACTIVE WINDROW
- S13 FRONT-END LOADER - FINISHED COMPOST

42.5 0 42.5 m

Scale 1 : 1500

REV	BY/C	DES	REVISION DESCRIPTION	CHKD	CHK	RVF

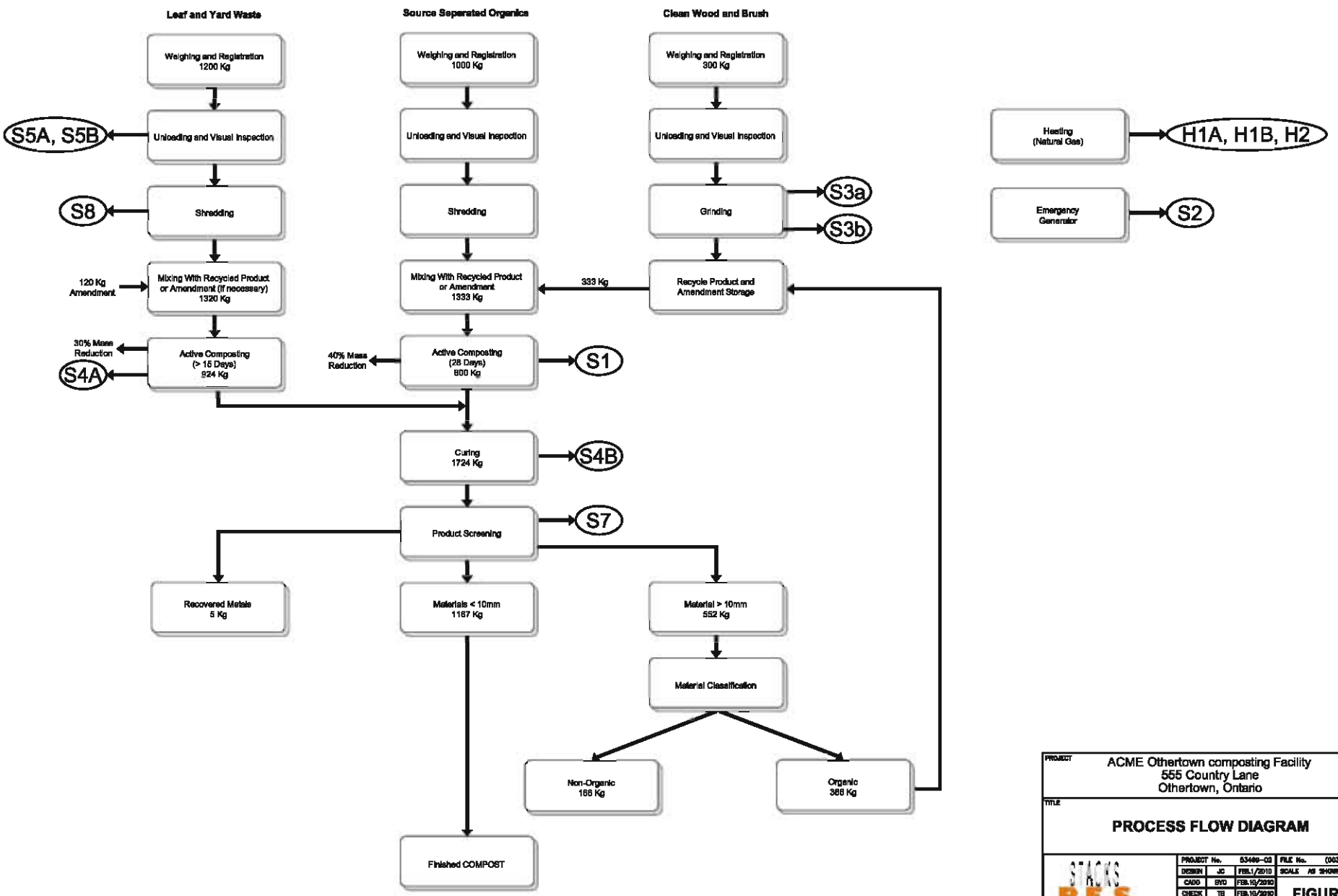
PROJECT: ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE: **SITE PLAN AND ROOF LAYOUT**

S.E.S. P.E.S. Inc.

PROJECT No.	53486-03	FILE No.	(003)ON-WA003	
DESIGN	JC	FEB.1/2010	SCALE AS SHOWN	REV.
CADD	SYD	FEB.10/2010		
CHECK	TB	FEB.10/2010		
REVIEW	TB	FEB.10/2010		

FIGURE 3



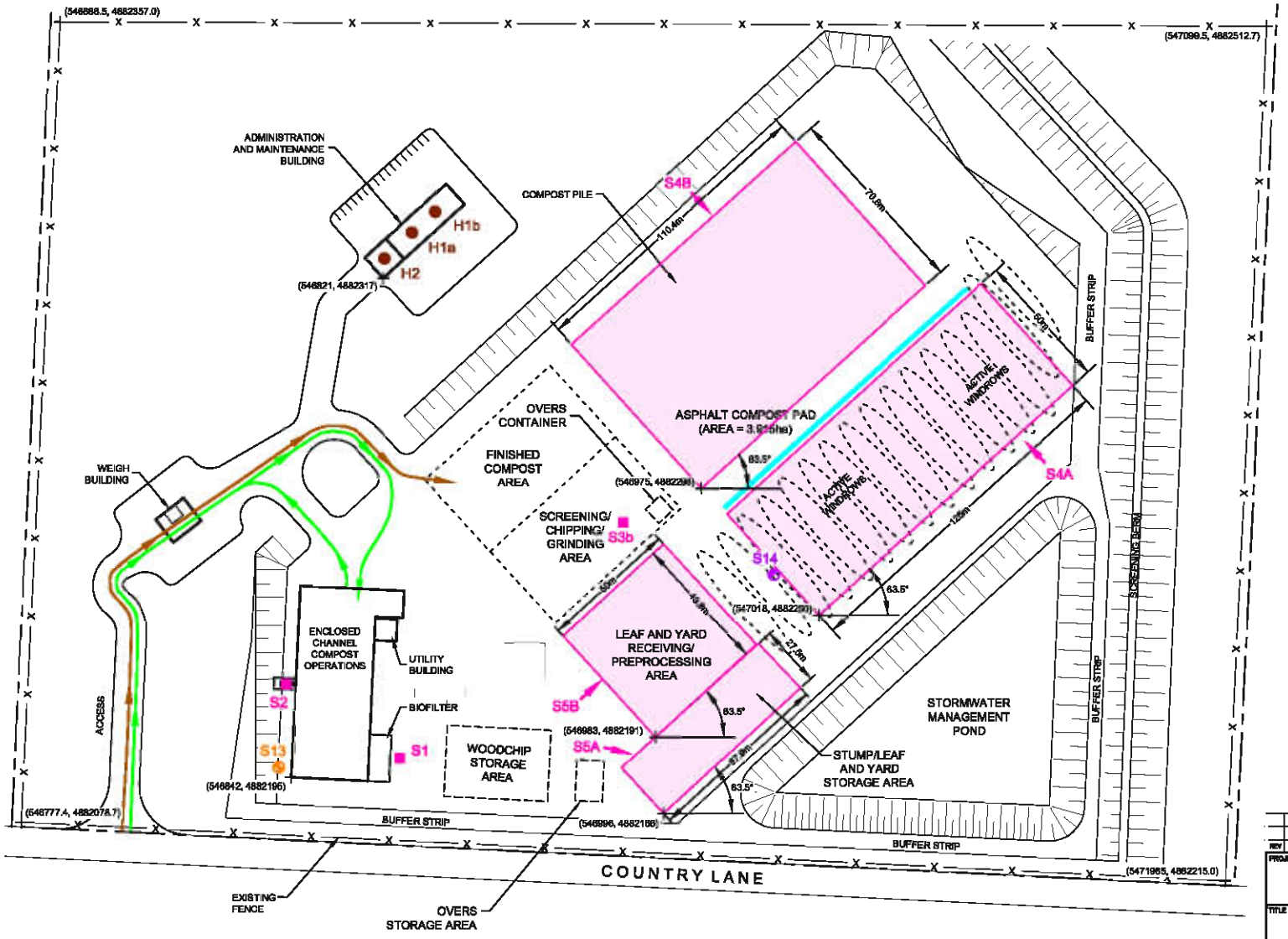
PROJECT
ACME Othertown composting Facility
555 Country Lane
Othertown, Ontario

TITLE
PROCESS FLOW DIAGRAM

STACKS P.E.S. Inc.

PROJECT No.	53466-02	FILE No.	(003)GN-WA004		
DESIGN	JC	FEB.1/2010	SCALE	AS SHOWN	REV.
CADD	SYD	FEB.10/2010			
CHECK	TB	FEB.10/2010			
REVIEW	TB	FEB.10/2010			

FIGURE 4



LEGEND

- PROPERTY BOUNDARY
- FENCE LINE / SITE BOUNDARY
- ROAD
- WATER TRUCK FOR ACTIVE WINDROWS
- SHIPPING TRUCK TO FINISHED COMPOST
- SHIPPING TRUCK TO LEAF & YARD WASTE
- H1a HVAC STACK
- S1 AIR EMISSION SOURCE
- S14 FRONT-END LOADER - ACTIVE WINDROW
- S13 FRONT-END LOADER - FINISHED COMPOST

POINT SOURCE COORDINATES

S2	546884,4882171
S3b	546943,4882261

AREA SOURCE COORDINATES

S1	546884,4882157
S4A	547018,4882250
S4B	546975,4882298
S5A	546996,4882188
S5B	546983,4882191

42.5 0 42.5

Scale 1 : 1500 m

REV	BY/E	DES	REVISION DESCRIPTION	DRSD	CHK	APP

PROJECT

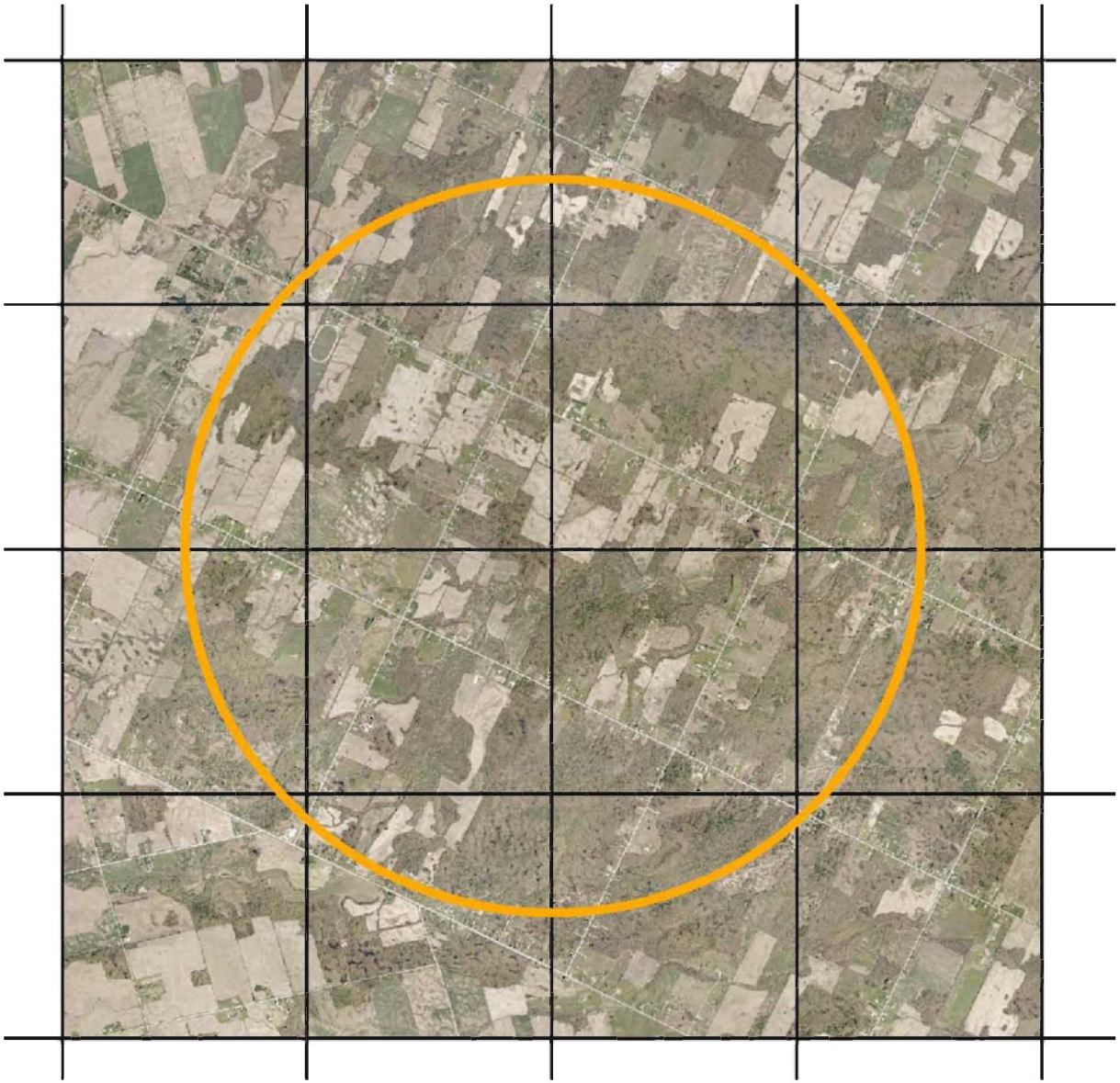
ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

DISPERSION MODELLING PLAN

STACKS P.E.S. Inc.

PROJECT No.	53409-03		FILE No.	(003)ON-WA005	
DESIGN	JC	FEB.1/2010	SCALE	AS SHOWN	REV.
CADD	SYD	FEB.10/2010	FIGURE 5		
CHECK	TB	FEB.10/2010			
REVIEW	TB	FEB.10/2010			



REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

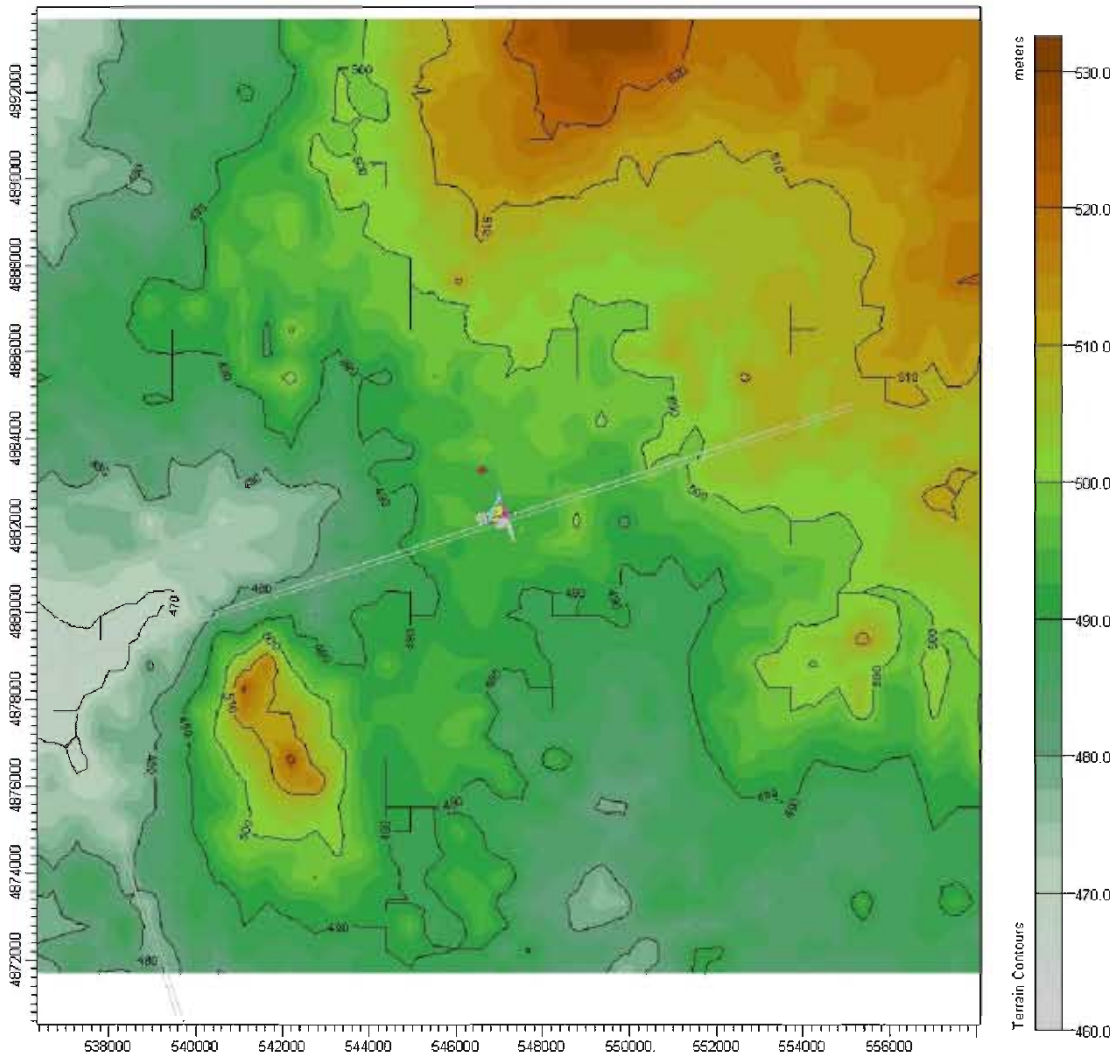
3 KILOMETER SATELLITE IMAGE

STACKS P.E.S. inc.

PROJECT No.	53469-02		FILE No.	(003)GN-WA006	
DESIGN	JC	FEB.1/2010	SCALE	AS SHOWN	REV.
CADD	BYO	FEB.10/2010			
CHECK	TB	FEB.10/2010			
REVIEW	TB	FEB.10/2010			

FIGURE 6

53469-02(003)GN-WA006 FEB 10/2010



REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

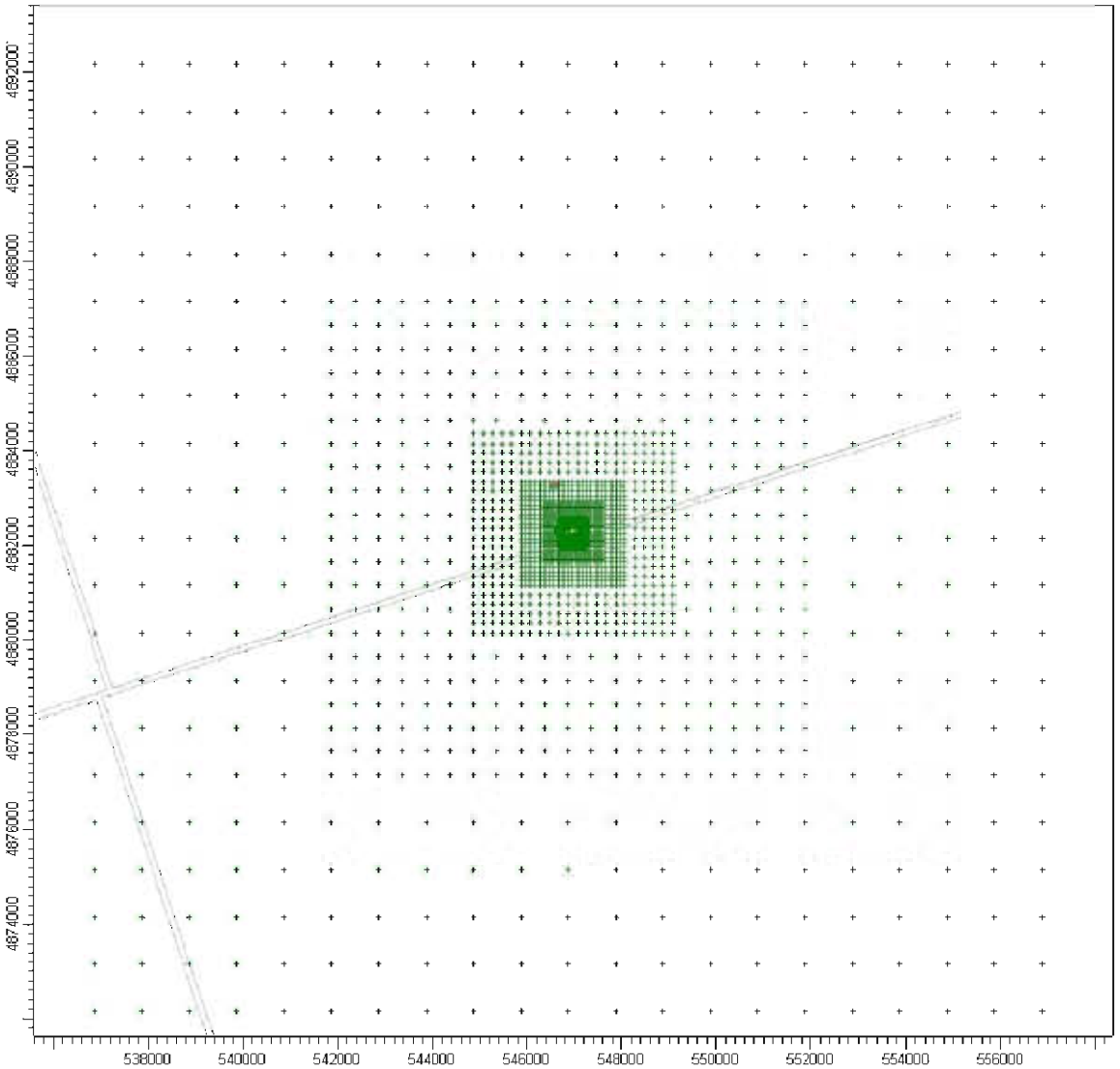
SITE PLAN - TERRAIN ELEVATION

STACKS P.E.S. Inc.

PROJECT No.	53469-02		FILE No.	(003)GN-WA007	
DESIGN	JC	FEB 1/2010	SCALE	AS SHOWN	REV.
CADD	BYD	FEB.10/2010			
CHECK	TB	FEB.10/2010			
REVIEW	TB	FEB.10/2010			

FIGURE 7

I:\53469-02\003\GN-WA007 FEB 102010



REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

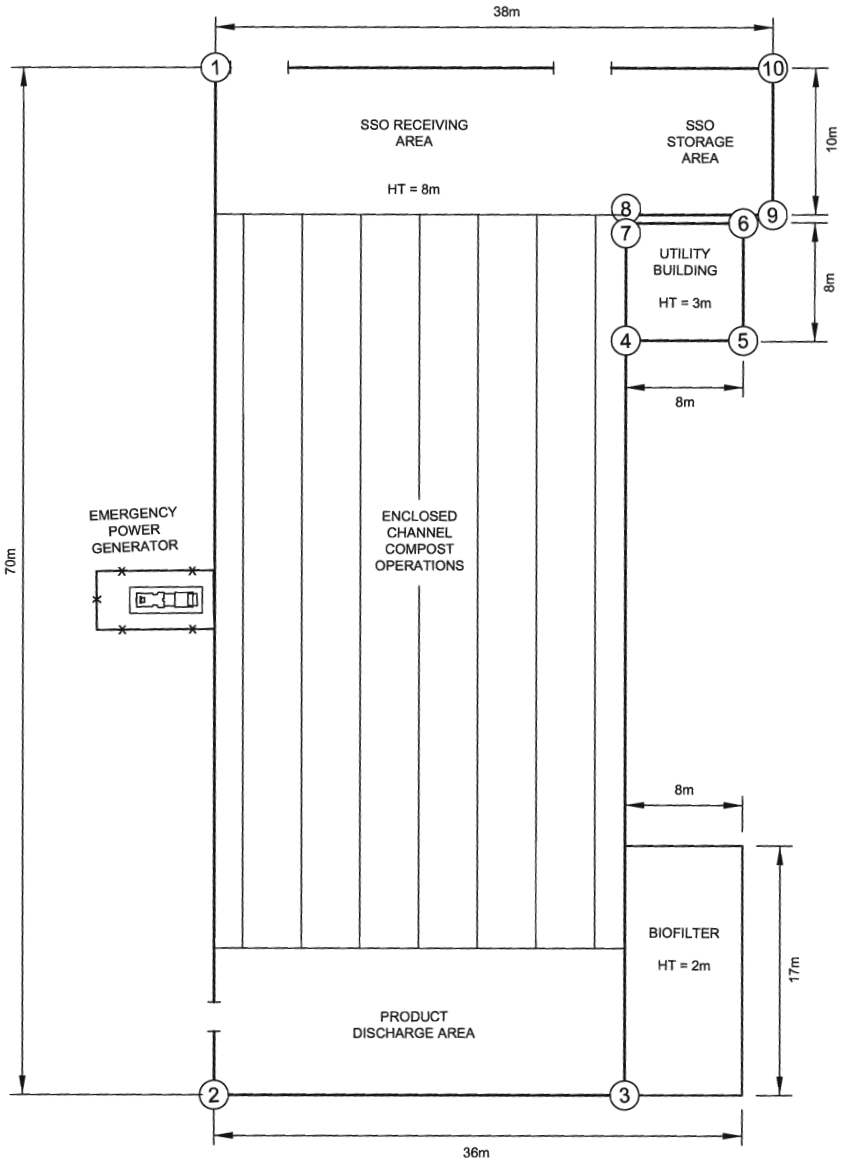
DISPERSION MODELLING RECEPTORS

STACKS P.E.S. Inc.

PROJECT No.	53469-02		FILE No.	(DD3)GN-WA008	
DESIGN	JC	FEB.1/2010	SCALE	AS SHOWN	REV.
CADD	BYO	FEB.10/2010			
CHECK	TB	FEB.10/2010			
REVIEW	TB	FEB.10/2010			

FIGURE 8

53469-02(DD3)GN-WA008 FEB 10/2010



LEGEND

- PROPERTY BOUNDARY
- FENCE LINE / SITE BOUNDARY
- ROAD

BUILDING CORNER COORDINATES

1 - 546842.046, 4882195.787
2 - 546863.789, 4882129.249
3 - 546890.404, 4882137.946
4 - 546874.263, 4882187.401
5 - 546882.532, 4882190.083
6 - 546880.342, 4882197.174
7 - 546871.927, 4882194.478
8 - 546871.768, 4882194.982
9 - 546881.273, 4882198.084
10 - 546878.167, 4882207.590

WOODCHIP STORAGE AREA

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT
ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE
BPIP PLAN

STALKS P.E.S. Inc.

PROJECT No.	53469-02	FILE No.	(003)GN-WA009		
DESIGN	JC	FEB.1/2010	SCALE	AS SHOWN	REV.
CADD	BYO	FEB.10/2010			
CHECK	TB	FEB.10/2010			
REVIEW	TB	FEB.10/2010			

FIGURE 9

53469-02(003)GN-WA009 FEB 10/2010

APPENDIX A

SAMPLE CALCULATIONS

Appendix A

Supporting Calculations
ACME Waste Inc.

LIST OF COMBUSTION EQUIPMENT

A list of combustion equipment and their associated ratings are found on Table A.2. The Natural Gas Combustion Sources at the Facility are considered exempt from obtaining a Certificate of Approval (Air), as discussed in Appendix B.

EMISSION CALCULATIONS AND PROCESS DESCRIPTION

Source S-1: Enclosed Channel Composting Operations Building Exhaust

The ACME Organics Composting Facility (ACME OCF) will be comprised of an enclosed channel composting operation for Source Separated Organics (SSO) waste and an outdoor windrow composting operation for leaf and yard waste.

The enclosed channel composting operations building is located in the southwest corner of the Site. Enclosed channel composting operations will occur in six (6) concrete channels, each measuring 1.2 m in depth, 3.7 m wide, and 60 m in length

There are various potential emissions from the operations building, the following emissions are presented in this section:

- Products of Diesel Combustion - from equipment operated inside the building;
- Particulate Matter - from processing and composting operations;
- Other Contaminants - from material processing and decomposition; and
- Odour – from material processing and decomposition.

The building exhaust is controlled by a biofilter, some information about the biofilter and the air handling system is provided as follows.

The enclosed channel operation building will be designed to maintain negative pressure under static conditions. Under normal operating conditions, the SSO receiving/storage area will have an air exchange rate of 6 per hour and product discharge area will have an air exchange rate of 4 per hour. The air from the receiving/storage and product discharge areas will be directed to the

compost channels before being exhausted to a biofilter. An alarm system will sound when the negative pressure in the SSO receiving area and SSO storage area drops to or below the average air exchanges.

The air intake system will consist of a series of rectangular louvers located mid-height along the west exterior wall of the building. The louvers will be motorized and interlocked with the overhead truck doors.

A downdraft biofilter, with a 35 second(s) Empty Bed Residence Time, having dimension of 17 m by 8 m biofilter and a media depth of 2 m, will be installed on the east side of the building. The air inlet into the biofilter is a series of perforated 5-cm diameter plastic pipes laid overtop of a gravel bed. Air diffuses down through the media and out to atmosphere through a stack at a maximum air flow rate of 7.55 m^3/s.

The biofilter exhaust flow rate has been calculated using the building area volumes and air exchanges as presented in the Table below:

Building Location	Volume of Building Area (m^3)	Air Exchanges per Hour	Exhaust Flow Rate to Biofilter (m^3/s)
Receiving	3040	6	5.06
Product Discharge	2240	4	2.49
TOTAL			7.55

A humidification system will spray inlet air, as necessary, to maintain a 40-60% moisture level in the media. A sprinkler system embedded in the biofilter medium provides supplementary moisture directly at the interface of the media and odiferous air. The inorganic media has an internal micropore and channel structure which retains and wicks moisture as needed to the surficial biofilm allowing the media to continuously re-wet itself.

At this time, pre-treatment of the inlet air for ammonia and hydrogen sulfide is not considered necessary. However, the biofilter design leaves open the possibility of the installation of a wet-scrubber system, should this be necessary.

The biofiltration operation will be monitored with embedded pH, temperature and moisture probes in addition to tracking system back pressure.

Products of Diesel Combustion

The composting material piles are moved in the operations building using two (2) 231 hp diesel fuelled front-end loaders; one operating in the receiving area and one operating in the discharge area. The emissions of these loaders are exhausted through the main building exhaust or they are exhausted as mobile sources outside the Facility. The emissions from the two (2) front-end loaders are assessed as being exhausted through the main exhaust.

Methodology: Emission Factor (EF)

The emissions from the mobile diesel front end loaders have been calculated using emission factors in USEPA AP-42 Chapter 3.3, "Gasoline and Diesel Industrial Engines". The USEPA quotes the emission factors for the products of combustion as having a quality rating of "D". The estimated emissions from the loaders are presented in Table A.2.

Sample Calculation: Nitrogen Oxides Emissions from Front End Loaders (1)

$$ER(\frac{g}{s}) = \frac{231 hp}{loader} \times 2 loaders \times 0.031 \frac{lb}{hp \circ hr} \times \frac{454 g}{lb} \times \frac{hr}{3600 s}$$

$$ER(\frac{g}{s}) = 1.8 \frac{g}{s}$$

Data Quality: Marginal/Uncertain

Section 8.3.4 of the ESDM Procedure Document titled "Marginal/Uncertain Data Quality" Emission Estimating Techniques includes emission factor calculations with a USEPA emission factor quality rating of "D".

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations for this source are based on two (2) loaders with 231 hp engines operating simultaneously.

Particulate Matter

Particulate matter emissions could potentially be emitted through the biofilter. The building emissions include potential emissions from unloading activities of the initial SSO as it arrives at the site, potential emissions from the screening and shredding operations, and potential emissions

from particulate entrapped in the air stream that passes through the composting channels. The SSO unloading activities, the screening and the shredding processes occur inside the building.

Methodology: Engineering Calculation

The estimated maximum particulate emissions from the building are based on biofilter stack testing data from a 20,000 tonne per year ACME composting facility operated in Anyothertown, Ontario with similar process and ventilation design and the specific exhaust flow rate of the proposed building. The stack testing was partially validated by the Ontario Ministry of the Environment (MOE) and performed by Hot Air Consulting in November 2008. The stack testing results are provided in Appendix D. The stack testing results indicate particulate emissions of 45 µg/m^3. The estimated emissions of particulate matter are presented in Table A.3A

Sample Calculation: Particulate Emissions (2)

$$ER(\frac{g}{s}) = \frac{45\mu g}{m^3} \times \frac{7.55 m^3}{s} \times \frac{g}{10^6 \mu g}$$

$$ER(\frac{g}{s}) = 3.4 \times 10^{-4} \frac{g}{s}$$

Data Quality: Average

Section 8.3.3 of the ESDM Procedure Document titled "Average Data Quality" Emission Estimating Techniques includes partially validated source testing.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations for this source are based on an operating scenario where all particulate generating activities are occurring simultaneously with the biofilter operating at its maximum flow rate.

Emissions of Other Contaminants

Source testing at a similar ACME facility indicated that the following contaminants were present in the building exhaust at levels above their detection limit: ammonia, hydrogen sulfide and mercaptans. These emissions could potentially result from the composting channel operations building due to the degradation of material.

Methodology: Engineering Calculation

The estimated maximum emissions from the composting channels are based on biofilter stack testing data from a 20,000 tonne per year composting facility operated by ACME in Anyothertown, Ontario with similar process and ventilation design and the exhaust flow rate of the stack at the proposed Facility. The stack testing was partially validated by the Ontario Ministry of the Environment (MOE) and performed by Hot Air Consulting in November 2008. The stack testing results are provided in Appendix D. The estimated emissions of ammonia, hydrogen sulfide and mercaptans are provided in Table A.3A. Additionally, the MOE has a POI criteria for the maximum ground level concentration of Total Reduced Sulfur (TRS). TRS emissions were calculated in accordance with MOE Guidance as the aggregate emission of hydrogen sulfide and mercaptans.

Sample Calculation: Ammonia Emissions from Operations Building (3)

$$ER(\frac{g}{s}) = \frac{30mg}{m^3} \times \frac{7.55m^3}{s} \times \frac{g}{1000mg}$$

$$ER(\frac{g}{s}) = 2.27 \times 10^{-1} \frac{g}{s}$$

Sample Calculation: Total Reduced Sulfur (g/s) (4)

$$ER_{TRS}\left(\frac{g}{s}\right) = ER_{H2S} + ER_{MERCAPTANS}$$

$$ER_{TRS}\left(\frac{g}{s}\right) = 7.55 \times 10^{-4} \frac{g}{s} + 7.55 \times 10^{-3} \frac{g}{s}$$

$$ER_{TRS}\left(\frac{g}{s}\right) = 8.31 \times 10^{-3} \frac{g}{s}$$

Data Quality: Average

Section 8.3.3 of the ESDM Procedure Document titled "Average Data Quality" Emission Estimating Techniques includes partially validated source testing.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations for this source are based on an operating scenario that is representative of the decomposition of the material at the proposed Facility.

Odour

Odour emissions could potentially result from the proposed Facility's composting channel building. The building will operate under negative pressure as previously discussed. The incoming SSO is unloaded within the confines of the building.

The biofilter is used to treat air from the operations building that may contain potentially odourous emissions originating from operations performed into the SSO and the aerobic composting of materials. The Facility prepared an Odour Impact Assessment in March 2008. This study outlines the air dispersion modelling for the off-site odour impacts. A copy of the Assessment is provided in Appendix E. Please refer to the Odour Management Plan in Appendix F for more information regarding the odour management practices to be implemented at the Facility.

Methodology: Engineering Calculation

The estimated maximum emission rate of odour from the biofilter exhaust is based on a theoretical odour concentration obtained through a literature study and the exhaust flow rate of the stack at the proposed Facility. The estimated potential odour emission rate is 12,000 odour units (o.u.) at the inlet of the biofilter. This odour inlet concentration was obtained from studies from other municipal SSO composting facilities and the rendering industry. A table representing the range of theoretical values is presented in Appendix G. The concentrations range from 6,150 o.u. to 13,085 o.u., therefore, the estimated 12,000 o.u. is a conservative estimate. According to the biofilter manufacturer, odours can be reduced by 90 % using this biofilter. The odour concentration has been estimated based on an odour inlet concentration to the biofilter of 12,000 o.u. and an odour removal efficiency of 90% which is conservative as the manufacturer states that a higher efficiency is proven. The estimated odour emissions are presented in Table A.3B.

Sample Calculation: Odour Emission from Operations Building (5)

$$ER(\frac{OU}{s}) = 12{,}000OU \times (100\% - 90\%) \times \frac{7.55m^3}{s}$$

$$ER(\frac{OU}{s}) = 9.06 \times 10^3 \frac{OUm^3}{s}$$

Data Quality: Marginal/Uncertain

Section 8.3.4 of the ESDM Procedure Document titled "Marginal/Uncertain Data Quality" Emission Estimating Techniques includes unvalidated source testing.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations for this source are based on an operating scenario that is representative of the decomposition of the material at the proposed Facility.

Source S-2: Emergency Generator

The diesel generator is used as an emergency power source. Potential emissions from the generator include products of diesel fuel combustion. The emergency diesel generator will be used to maintain air flow in the operations building and to continue operation of the biofilter in the event of a power outage.

Methodology: Emission Factor (EF)

The emissions from the diesel fuelled emergency generator have been calculated using emission factors in USEPA AP-42 Chapter 3.3, "Gasoline and Diesel Industrial Engines". The USEPA quotes the emission factors for the products of combustion as having a quality rating of "D". The estimated emissions from the generator are presented in Table A.4. Manufacturer's specifications for the generator are provided in Appendix H.

Sample Calculation: Nitrogen Oxides Emissions from Emergency Generator (6)

$$ER(\frac{g}{s}) = 201hp \times 0.031 \frac{lb}{hp \circ hr} \times \frac{454g}{lb} \times \frac{hr}{3600s}$$

$$ER(\frac{g}{s}) = 7.86 \times 10^{-1} \frac{g}{s}$$

Data Quality: Marginal/Uncertain

Section 8.3.4 of the ESDM Procedure Document titled "Marginal/Uncertain Data Quality" Emission Estimating Techniques includes emission factor calculations with a USEPA emission factors quality rating of "D".

Operating Condition, Individual Maximum Rates of Production:

For the purpose of this Application, it is assumed that the generator will be running at maximum output (full load). This piece of equipment is not considered to be operating simultaneously with all other combustion equipment, and is only used in the event of a power failure or testing.

Sources S-3A and S-3B: Wood Tub Grinder

The Facility will use a tub grinder to reduce the size of stumps that are transported to the Facility for processing with the leaf and yard waste. The Facility is proposing to use a Tub Grinder, specifications for this equipment are provided in Appendix H. This equipment will be operated using a 150 kW (201 hp) diesel fired engine. The emissions of the tub grinder have been split into two portions representing the wood grinding action (S3-A) and the engine (S3-B).

Source S-3A- Grinding Action

Methodology: Emission Factor (EF)

The emissions from the wood grinding action of the Tub Grinder (Source S-3A) have been calculated using emission factors found in the Environment Canada publication entitled " 2.2.5 Case Study Wood Operations" provided in Appendix I. There are no emission factors available in USEPA AP-42 and therefore, this representative Environment Canada data has been used as summarized in Table A.5A.

Sample Calculation: Particulate Matter Emissions from Tub Grinder (7)

$$ER(\frac{g}{s}) = \frac{4.6\times10^{-5}\,kg}{tonne\ chipped}\times\frac{125kg}{hr}\times\frac{tonne}{1000kg}\times\frac{hr}{3600s}\times\frac{1000g}{kg}$$

$$ER(\frac{g}{s}) = 1.6\times10^{-6}\,g/s$$

Data Quality: Average

Section 8.3.3 of the ESDM Procedure Document titled "Average Quality" Emission Estimating Techniques includes emission factor calculations with using emission estimates that are developed from tests on a reasonable number of facilities where the source category population is sufficiently specific to minimize variability.

The emissions from the grinding action are considered insignificant as provided in Appendix B and are not included in the dispersion modelling.

Source S-3B - Engine

The emissions for the diesel combustion engine on the Tub Grinder (Source S-3B) have been estimated using emission factors found in USEPA AP-42 Chapter 3.3, "Gasoline and Diesel

Industrial Engines". The USEPA quotes the emission factors for the products of combustion as having a quality rating of "D". Table A.5B summarizes the emission estimates.

Sample Calculation: Nitrogen Oxides Emissions from Tub Grinder Engine (8)

$$ER(\frac{g}{s}) = 201hp \times 0.031 \frac{lb}{hp \circ hr} \times \frac{454g}{lb} \times \frac{hr}{3600s}$$

$$ER(\frac{g}{s}) = 7.86 \times 10^{-1} \frac{g}{s}$$

Data Quality: Marginal/Uncertain

Section 8.3.4 of the ESDM Procedure Document titled "Marginal/Uncertain Data Quality" Emission Estimating Techniques includes emission factor calculations with a USEPA emission factors quality rating of "D".

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations for this source are based on an operating scenario that is representative of the grinder operating at full capacity at the proposed Facility.

Sources S-4A and S-4B: Leaf and Yard Composting/Curing Piles

Leaf and yard windrow composting operations will occur within a 1.3 hectare area of the asphalt pad in the central portion of the Site. Materials will be received and sorted within a 0.250-hectare pre-processing area located at the southern extent of the windrow composting operations. A 0.152 hectare area for storage of ungrounded tree stumps and unprocessed leaf and yard waste will be located adjacent to the receiving and pre-processing area.

The estimated potential odour emission rate from the leaf and yard composting piles (S-4a) is 0.1 ou/m^2/s based on testing results from a similar facility. The source testing was validated by the Ontario Ministry of the Environment (MOE) and performed by Hot Air Consulting in November 2008. The stack testing results are provided in Appendix D.

The estimated potential odour emission rate from the curing piles is 0.4 ou/m^2/s based on testing results from a similar facility. The source testing was validated by the Ontario Ministry of the

Environment (MOE) and performed by Hot Air Consulting in November 2008. The stack testing results are provided in Appendix D.

Data Quality: Average

Section 8.3.3 of the ESDM Procedure Document titled "Average Data Quality" Emission Estimating Techniques includes partially validated source testing.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations for this source are based on an operating scenario that is representative of the decomposition of the material at the proposed Facility.

Source S-5A, S-5B: Leaf and Yard Storage and Pre-processing Areas

Leaf and yard will be received and pre-processed within a 0.250-hectare area (S-5B) of the asphalt pad located at the southern extent of the windrow composting operations. A 0.152-hectare area (S-5A) for storage of ungrounded tree stumps and unprocessed leaf and yard waste will be located adjacent to the receiving and pre-processing area. Acceptable loads will be promptly processed on the day of receipt. However, should same day processing not be possible, the pre-processing area will have storage capacity for up to 3 days of leaf and yard waste.

The estimated potential odour emission rate from the leaf and yard receiving and pre-processing areas (S-5A, S-5B) has been assumed to be the same as Sources S-4A/S-4B, which is 0.1 ou/m^2/s. This emission rate is based on testing results from a similar facility. The source testing was validated by the Ontario Ministry of the Environment (MOE) and performed by Hot Air Consulting in November 2008. The stack testing results are provided in Appendix D.

Data Quality: Average

Section 8.3.3 of the ESDM Procedure Document titled "Average Data Quality" Emission Estimating Techniques includes partially validated source testing.

Operating Condition, Individual Maximum Rates of Production:

The emission rate calculations for this source are based on an operating scenario that is representative of the decomposition of the material at the proposed Facility.

Table A.1

List of Combustion Equipment
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Equipment Identification	***Ratings BTUs/hr***
Diesel Combustion	
S-2 Emergency Generator (150kW)	512,277
S-3A Tub Grinder Engine (150kW)	512,277
Total	**1,024,554**
Natural Gas Combustion	
H-1a - Maintennace Building HVAC	250,000
H-1b - Maintennace Building HVAC	250,000
H-2 - Maintenance Hot Water Heater	100,000
Total	**500,000**

Table A.2

Estimated Mobile Diesel Combustion Products Emissions
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Total Power Rating (hp): 462

Source ID	*Compound*	*CAS No.*	*Uncontrolled Emission Factor (lb/hp-hr) (1)*	*Estimated Maximum Emission Rate (g/s) (2)*
S-1	Nitrogen Oxides	10102-44-0	3.10E-02	1.80E+00
	Carbon Monoxide	630-08-0	6.68E-03	3.89E-01
	Sulphur Oxides (as Sulphur Dioxide)	7446-09-5	2.05E-03	1.19E-01
	Particulate Matter	--	2.20E-03	1.28E-01

Notes:
(1) Emission factors provided in USEPA AP-42, Chapter 3.3, "Gasoline and Diesel Industrial Engines", Table 3.3-1.
(2) Based on the total power rating of two 231 hp front-end loaders operating simultaneously.

Table A.3A

Estimated Maximum Emission Rates from Composting Operations
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Source ID	*Contaminant*	*CAS No.*	*Concentration (1)*		*Flow Rate (m^3/s)*	*Estimated Fraction Emitted To Atmosphere (%)*	*Maximum Emission Rate (g/s)*
S-1	Particulate	N/A	45	ug/m^3	7.55	100%	3.40E-04
	Ammonia	7664-41-7	30	mg/m^3	7.55	100%	2.27E-01
	Mercaptans	N/A	1	mg/m^3	7.55	100%	7.55E-03
	Hydrogen Sulfide	7783-06-4	0.1	mg/m^3	7.55	100%	7.55E-04
	Total Reduced Sulfur	NA					8.31E-03

Notes:
(1) Outlet concentrations for contaminants are based on source testing completed at a similar ACME Waste Inc. Site.
The source testing was partially validated by the Ontario Ministry of the Environment (MOE) and the results are presented in Appendix D.
N/A - Not available

Table A.3B

Estimated Odour Emission Rates from Facility
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Source ID	*Contaminant*	*Concentration*		*Flow Rate* (m^3/s) *(1)*	*Area* (m^2)	*Maximum Emission Rate*	
		Inlet	*Outlet*				
S-1	Odour - Biofilter	12,000 (OU)(2)	1,200(OU) (3)	7.55	136	9.06E+03	ou m^3/s
S-4A	Odour (Leaf and Yard Waste)	-	-	-	6,250	1.00E-01	ou/m^2/s
S-4B	Odour (Curing Piles)	-	-	-	7,817	4.00E-01	ou/m^2/s
	Odour (Fugitive)	-	-	-	-	(4)	
S-5A	Odour (Stump/Leaf and Yard Waste	-	-	-	1,528	1.00E-01	ou/m^2/s
S-5B	Odour (Leaf and Yard Waste)	-	-	-	2,490	1.00E-01	ou/m^2/s

Notes:
(1) Flowrate calculated based on air exchanges in the processing area. Depth of biofilter is 2.0 m with an area of 17 m x 8 m. For a 35 s HRT
(2) Inlet concentration based on literature review and engineering estimates
(3) Outlet concentration based on conservative 90% removal efficiency as provided by abatement manufacturer
(4) Fugitive emissions assumed to be insignificant based on airlock entry doors and negative air pressure within the receiving halls

Table A.4

Estimated Diesel Combustion Products Emissions From Emergency Generator
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Maximum Power Output rating (hp) = 201
Maximum Power Output rating (kW) = 150

Source ID	*Compound*		*Uncontrolled Emission Factor*	*Estimated Maximum Emission Rate (2)*
				(g/s)
S-2	Nitrogen Oxides	10102-44-0	0.03 (lb/hp-hr)(1)	7.86E-01

Notes:
(1) Emission factors provided in USEPA AP-42, Chapter 3.3, "Gasoline and Diesel Industrial Engines", Table 3.3-1.
(2) Based on maximum power rating of emergency generator (150kW)

Table A.5A

Estimated Maximum Particulate Matter Emissions from Tub Grinder
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Facility Wide Wood Shredded by Equipment = 125 kg/hr (1)

Source ID	*Source Description*	*Emission Factor (kg/tonne) (2)*	*Emission Rate (g/s)*
S-3A	Wood Tub Grinder	4.60E-05	1.60E-06

Notes:
(1) Based on 1 tonne of wood waste being shredded each eight (8) hour work day.
(2) Particulate Matter Estimation is based on the Environment Canada Emission Factors located in Appendix I.

Table A.5B

Estimated Diesel Combustion Products Emissions from Tub Grinder
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Total Power Rating (hp): 201

Source ID	*Compound*	*CAS No.*	*Uncontrolled Emission Factor (lb/hp-hr) (1)*	*Estimated Maximum Emission Rate (g/s) (2)*
S-3B	Nitrogen Oxides	10102-44-0	3.10E-02	7.86E-01
	Carbon Monoxide	630-08-0	6.68E-03	1.69E-01
	Sulphur Oxides (as Sulphur Dioxide)	7446-09-5	2.05E-03	5.20E-02
	Particulate Matter	--	2.20E-03	5.58E-02

Notes:
(1) Emission factors provided in USEPA AP-42, Chapter 3.3, "Gasoline and Diesel Industrial Engines", Table 3.3-1.
(2) Based on a diesel engine with a rating of 150kW.

APPENDIX B

SUPPORTING INFORMATION FOR ASSESSMENT OF NEGLIGIBILITY

Appendix B

Supporting Information for Assessment of Negligibility
ACME Waste Inc.

Sources were screened for negligibility using the following screening protocols listed in the ESDM Procedure Document and MOE documentation:

- Fugitive dust from on-site roadways (Section 7.4);
- Sources that are insignificant relative to total emissions (Section 7.2.2);
- Specific Examples of Sources that Emit Contaminants in Negligible Amounts (Appendix B.2); and
- Emergency generator guidance (PIBS 4131e).

The results of the screening are discussed in greater detail in the following text.

B.1 Fugitive Road Dust:

The Facility is listed in Table 7-3 of Section 7.4 of the ESDM Procedure Document however, the Facility is not a landfill and accordingly dust emissions from these sources (parking lot, paved roads) can be considered as insignificant.

B.2 Sources that are Insignificant Relative to Total Emissions:

The Ministry has provided additional guidance to the Generalized Guidance in Chapter 7.3 of ESDM Procedure Document through the O.Reg. 419/05 Q & A process regarding Semi Qualitative Correlative Assessments (Q8-7 Round 2 March 10, 2006).

By using this guidance, a source may be considered negligible if the emissions from one source of contaminants are similar (same contaminants and same relative proportions of contaminants) to another source of contaminants and **one** of the sources would have a much higher emission rate than the other smaller source. The smaller source can be classified as insignificant provided the resultant POI impact of all the contaminants does not result in non-compliance. If the margin of compliance is so slight that if the smaller source(s) were included the aggregate POI impact of all the contaminants would result in non-compliance, the smaller source cannot be considered insignificant. If a source will contribute less than 5% of the expected emissions of a specific contaminant emitted from the Facility that source can be considered insignificant.

Particulate Matter

There are sources at the Facility that may be considered negligible since their emissions are similar to the emissions from the processing building and fuel combustion (particulate). The emissions of particulate matter from the storage piles, leaf and yard waste composting, the curing piles and the leaf and yard waste screening and shredding (S-4a, S-4b, S-5a, S-5b, S-5c, S-7, S-8) have been considered insignificant. The piles have high moisture content when they are formed and the piles form a "crust" once they are left outdoors. Additionally, the shredding and screening equipment will be equipped with portable water spray nozzles that will apply water to control dust during the pre-processing activities. These activities all account for less than 5% of the expected emissions of particulate at the Facility and therefore, are considered to be insignificant.

Provided that the windrows and curing piles (S-4a and S-4b) are maintained at their appropriate moisture content, dust from them should not be an issue. If windblown dust becomes an issue, the portable sprayer will be used to wet the surface of the windrows. Alternatively the windrows can be covered with a layer of wood chips. To control dust during windrow turning, the portable sprayer will travel in tandem with the front end loader and spray a water mist over the portion of the windrow being turned. Similarly the portable sprayer will be positioned over the screener and shredder (S-7 and S-8) to control dust levels during screening and shredding activities. Dust from a composting facility will typically be generated from spaces between windrows. In order to minimize dust generation all roadways will be paved and will be watered down, as necessary.

The emissions from the grinding action of the tub grinder (S-3A) have been considered insignificant as they represent less than 1% of particulate emissions, although these emissions were estimated in Table A.5A, they were not included in the dispersion modelling.

Odour

Insignificant odour emissions are expected from the screening/chipping grinding area and the finished compost area (S-5c), as the material does not decompose in these areas and are therefore, considered insignificant.

The operations building is expected to have insignificant fugitive emissions due to the various preventative measures that ACME will undertake. To minimize the potential for odour, ACME has prepared an Odour Management Plan provided in Appendix F, outlining procedures in place

to reduce the generation of odours and to ensure systematic remediation of odours if they do occur. The plan addresses many factors throughout the composting process, including:

- proper feedstock preparation;
- good management practices; and
- odour monitoring.

A more detailed description of the procedures to be followed to address each of these factors is included in the following sections.

PROPER FEEDSTOCK PREPARATION

It is important to ensure that the leaf and yard or SSO waste is prepared properly so that the feedstock has the proper carbon to nitrogen (C:N) ratio. Leaf and yard waste being composted in outdoor windrows should have an C:N ration of 30:1. The SSO waste being managed in the enclosed channels typically has a higher nitrogen content than leaf and yard waste, however it is important to maintain the C:N ratio for the SSO feedstock close to 20:1.

GOOD MANAGEMENT PRACTICES

General good housekeeping practices will be maintained to prevent the generation of odours, including:

- all SSO waste is received and pre-processed inside, and primary composting takes place inside the building which is kept under negative pressure at all times. Building air is captured and treated through the biofilter prior to release to atmosphere;
- the doors to the enclosed channel building will be closed at all times other than when trucks are entering or exiting the building;
- the tipping floor of the enclosed channel building will be swept clean on a daily basis and absorbents will be used, as required, to remove any liquid pooled on the tip floor;
- in case of emergency there will be storage capacity for 3 days of material, but best management practices dictate that SSO will be mixed and loaded into the channels on the day of receipt and no later than within 24 hours of receipt ;
- loads of grass clippings will be incorporated into windrows on the day of receipt and no later than within 4 days of receipt;

- any standing water on the compost pad will be removed, and modifications made to the pad to prevent water from ponding;
- windrows will be turned based on temperature, moisture and oxygen requirements to prevent anaerobic conditions;
- the windrows will be turned only when wind direction and atmospheric pressure conditions are suitable. Windrow turning will be avoided during weather inversions, during early morning and late evening and during east winds (i.e., when winds are blowing in the direction of sensitive receptors). Windrow handling will be minimized during humid climate conditions;
- all roads, access areas, asphalt pads and drainage ditches will be maintained in good condition. The area will be graded, ruts and potholes filled and re-compacted as needed to prevent ponding of water;
- the site will be inspected on each operating day for general housekeeping;
- a detailed inspection of the Site will be performed on a quarterly basis and the results and any mitigative actions taken to correct deficiencies recorded; and
- any material in an advanced anaerobic state, if it can not be brought back to an aerobic state, will be landfilled.

B.3 Specific Examples of Sources that Emit Contaminants in Negligible Amounts (Appendix B.2)

B.3.1 Sources Exempt from Obtaining a C of A

Table B-3 in Appendix B.2 of the ESDM Procedure document outlines Specific Examples of Sources that Emit Contaminants in Negligible Amounts. Table B-3 lists "Sources that are Exempt from Obtaining a CofA." The Facility only operates natural gas combustion equipment with a combined heat input ratings of 0.53 million kilojoules per hour (S-6 (H-1a, H-1b, H-2)). Therefore, the emissions from this equipment are exempt from obtaining a CofA as the total Facility rating is less than 1.5 million BTU per hour as listed in Ontario Regulation 524/98. The ratings of each of the natural gas-fired sources are summarized in Table A.2.

B.4 Emergency Generator Guidance

It is the Ministry's current procedure that it is not necessary for emergency generators to obtain the point of impingement limits for discharged contaminants in Schedules 1, 2, and 3 standards.

The significant contaminants emitted from emergency generators is Nitrogen Oxides (NOx). For a generator used in emergency situations only, the Environmental Assessment and Approvals Branch (EAAB) has a screening level of 1,880 $\mu g/m^3$ - maximum half hour concentrations at non-sensitive receptors. Based on this guidance, only NOx has been assessed for the emergency generator and the resulting maximum ground level concentration has been compared to the EAAB screening level.

to reduce the generation of odours and to ensure systematic remediation of odours if they do occur. The plan addresses many factors throughout the composting process, including:

- proper feedstock preparation;
- good management practices; and
- odour monitoring.

A more detailed description of the procedures to be followed to address each of these factors is included in the following sections.

PROPER FEEDSTOCK PREPARATION

It is important to ensure that the leaf and yard or SSO waste is prepared properly so that the feedstock has the proper carbon to nitrogen (C:N) ratio. Leaf and yard waste being composted in outdoor windrows should have an C:N ration of 30:1. The SSO waste being managed in the enclosed channels typically has a higher nitrogen content than leaf and yard waste, however it is important to maintain the C:N ratio for the SSO feedstock close to 20:1.

GOOD MANAGEMENT PRACTICES

General good housekeeping practices will be maintained to prevent the generation of odours, including:

- all SSO waste is received and pre-processed inside, and primary composting takes place inside the building which is kept under negative pressure at all times. Building air is captured and treated through the biofilter prior to release to atmosphere;
- the doors to the enclosed channel building will be closed at all times other than when trucks are entering or exiting the building;
- the tipping floor of the enclosed channel building will be swept clean on a daily basis and absorbents will be used, as required, to remove any liquid pooled on the tip floor;
- in case of emergency there will be storage capacity for 3 days of material, but best management practices dictate that SSO will be mixed and loaded into the channels on the day of receipt and no later than within 24 hours of receipt ;
- loads of grass clippings will be incorporated into windrows on the day of receipt and no later than within 4 days of receipt;

- any standing water on the compost pad will be removed, and modifications made to the pad to prevent water from ponding;
- windrows will be turned based on temperature, moisture and oxygen requirements to prevent anaerobic conditions;
- the windrows will be turned only when wind direction and atmospheric pressure conditions are suitable. Windrow turning will be avoided during weather inversions, during early morning and late evening and during east winds (i.e., when winds are blowing in the direction of sensitive receptors). Windrow handling will be minimized during humid climate conditions;
- all roads, access areas, asphalt pads and drainage ditches will be maintained in good condition. The area will be graded, ruts and potholes filled and re-compacted as needed to prevent ponding of water;
- the site will be inspected on each operating day for general housekeeping;
- a detailed inspection of the Site will be performed on a quarterly basis and the results and any mitigative actions taken to correct deficiencies recorded; and
- any material in an advanced anaerobic state, if it can not be brought back to an aerobic state, will be landfilled.

B.3 Specific Examples of Sources that Emit Contaminants in Negligible Amounts (Appendix B.2)

B.3.1 Sources Exempt from Obtaining a C of A

Table B-3 in Appendix B.2 of the ESDM Procedure document outlines Specific Examples of Sources that Emit Contaminants in Negligible Amounts. Table B-3 lists "Sources that are Exempt from Obtaining a CofA." The Facility only operates natural gas combustion equipment with a combined heat input ratings of 0.53 million kilojoules per hour (S-6 (H-1a, H-1b, H-2)). Therefore, the emissions from this equipment are exempt from obtaining a CofA as the total Facility rating is less than 1.5 million BTU per hour as listed in Ontario Regulation 524/98. The ratings of each of the natural gas-fired sources are summarized in Table A.2.

B.4 Emergency Generator Guidance

It is the Ministry's current procedure that it is not necessary for emergency generators to obtain the point of impingement limits for discharged contaminants in Schedules 1, 2, and 3 standards.

The significant contaminants emitted from emergency generators is Nitrogen Oxides (NOx). For a generator used in emergency situations only, the Environmental Assessment and Approvals Branch (EAAB) has a screening level of 1,880 $\mu g/m^3$ - maximum half hour concentrations at non-sensitive receptors. Based on this guidance, only NOx has been assessed for the emergency generator and the resulting maximum ground level concentration has been compared to the EAAB screening level.

APPENDIX C

DISPERSION MODELLING DATA AND ELECTRONIC FILES (on CD)

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 6.1.0
** Lakes Environmental Software Inc.
** Date: 9/1/2009
** File: C:\53469_ACME\ACME_AirContaminants\NOxa.ADI
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE Site-Wide Nitrogen Oxides
   TITLETWO ACME Othertown Composting Facility, Othertown, Ontario
   MODELOPT DFAULT CONC
   AVERTIME 1 24
   POLLUTID NOX
   RUNORNOT RUN
   EVENTFIL NOxa.evi DETAIL
   SAVEFILE NOxa.sv1 5
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION S1 POINT 546899.340 4882151.340 495.000
** DESCRSRC biofilter
   LOCATION S3B POINT 546942.980 4882260.770 494.570
** DESCRSRC diesel generator - wood tub grinder
** Source Parameters **
   SRCPARAM S1 1.800 12.000 313.150 15.020 0.800
   SRCPARAM S3B 0.786 4.260 898.150 67.48170 0.100

** Building Downwash **
   BUILDHGT S1          0.00    11.00    11.00    11.00    11.00    11.00
   BUILDHGT S1         11.00    11.00    11.00    11.00    11.00    11.00
   BUILDHGT S1         11.00    11.00    11.00    11.00     0.00     0.00
   BUILDHGT S1          0.00    11.00    11.00    11.00    11.00    11.00
   BUILDHGT S1         11.00    11.00    11.00    11.00    11.00    11.00
   BUILDHGT S1         11.00    11.00    11.00    11.00     0.00     0.00

   BUILDHGT S3B         0.00     0.00     0.00     0.00     0.00     0.00
   BUILDHGT S3B         0.00     0.00     0.00     0.00     0.00     0.00
   BUILDHGT S3B         0.00     0.00     0.00     0.00     0.00     0.00
   BUILDHGT S3B         0.00     0.00     0.00     0.00     0.00     0.00
   BUILDHGT S3B         0.00     0.00     0.00     0.00     0.00     0.00
   BUILDHGT S3B         0.00     0.00     0.00     0.00     0.00     0.00

   BUILDWID S1          0.00    65.22    70.80    74.22    75.39    74.27
```

**MODELOPTs:
CONC DFAULT ELEV

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

-- DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses RURAL Dispersion Only.

**Model Uses Regulatory DEFAULT Options:
1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 2 Short Term Average(s) of: 1-HR 24-HR

**This Run Includes: 2 Source(s); and 2712 Receptor(s)

**The Model Assumes A Pollutant Type of: NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 278.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 1.4 MB of RAM.

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	1ST HIGH VALUE IS	208.64012	ON 00120102: AT (546982.31, 4882145.50, 495.00, 495.00, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	1ST HIGH VALUE IS	126.38358	ON 98020524: AT (546945.06, 4882133.50, 495.00, 495.00, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

```
**MODELOPTs:
CONC                        DFAULT ELEV


*** Message Summary : AERMOD Model Execution ***

 ---------- Summary of Total Messages --------

A Total of              0 Fatal Error Message(s)
A Total of             16 Warning Message(s)
A Total of            955 Informational Message(s)

A Total of              0 Calm Hours Identified

A Total of            955 Missing Hours Identified (  2.18 Percent)


    ******** FATAL ERROR MESSAGES ********
                ***  NONE  ***


    ********   WARNING MESSAGES   ********
SO W320     46 PPARM :Input Parameter May Be Out-of-Range for Parameter       QS
SO W320     46 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320     47 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320     48 APARM :Input Parameter May Be Out-of-Range for Parameter       QS
SO W320     48 APARM :Input Parameter May Be Out-of-Range for Parameter    ANGLE
MX W441 19928 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041008
MX W441 19929 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041009
MX W441 19930 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041010
MX W441 19931 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041011
MX W441 19932 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041012
MX W441 19933 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041013
MX W441 19934 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041014
MX W441 19935 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041015
MX W441 19936 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041016
MX W441 19937 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041017
MX W441 19938 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041018

    ************************************
    *** AERMOD Finishes Successfully ***
    ************************************
```

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S2 , S3A , S4 ,

** CONC OF NOX IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	~~126.18158~~	(98020524)	AT	(546945.06, 4882133.50)	DC	41.	98.70626	(00120224)	AT	(546973.00, 4882142.50)	DC
2.	~~125.79230~~	(98020524)	AT	(546954.38, 4882136.50)	DC	42.	98.24650	(00120224)	AT	(546963.94, 4882137.50)	DC
3. (MAX)	117.79075	(98020424)	AT	(546954.38, 4882136.50)	DC	43.	97.93919	(98101024)	AT	(546982.31, 4882145.50)	DC
4.	116.68360	(98020424)	AT	(546945.06, 4882133.50)	DC	44.	97.59647	(96010224)	AT	(546917.12, 4882124.50)	DC
5.	~~116.32770~~	(99022124)	AT	(546963.69, 4882139.50)	DC	45.	97.47193	(98011624)	AT	(546945.06, 4882133.50)	DC
6.	~~114.90164~~	(98020524)	AT	(546935.75, 4882130.50)	DC	46.	~~97.44403~~	(00120124)	AT	(546945.06, 4882133.50)	DC
7.	~~114.49039~~	(00120124)	AT	(546963.69, 4882139.50)	DC	47.	~~97.38807~~	(98020524)	AT	(546963.94, 4882117.50)	DC
8.	~~114.36443~~	(96091824)	AT	(546982.31, 4882145.50)	DC	48.	97.20535	(98101024)	AT	(546973.00, 4882142.50)	DC
9.	~~113.82864~~	(99022124)	AT	(546963.94, 4882137.50)	DC	49.	~~96.97713~~	(96091824)	AT	(547000.94, 4882151.50)	DC
10.	112.51369	(99031324)	AT	(546973.00, 4882142.50)	DC	50.	96.65536	(98110224)	AT	(546991.62, 4882148.50)	DC
11.	~~113.51086~~	(98020524)	AT	(546963.69, 4882139.50)	DC	51.	96.53577	(99022024)	AT	(546983.94, 4882137.50)	DC
12.	~~112.44253~~	(00120124)	AT	(546963.94, 4882137.50)	DC	52.	96.38413	(96010224)	AT	(546907.75, 4882121.50)	DC
13.	111.55807	(99022024)	AT	(546973.00, 4882142.50)	DC	53.	96.36688	(99042424)	AT	(546973.00, 4882142.50)	DC
14.	~~111.40182~~	(96091824)	AT	(546991.62, 4882148.50)	DC	54.	96.08749	(98090824)	AT	(547010.25, 4882155.00)	DC
15.	~~111.40163~~	(00120124)	AT	(546954.38, 4882136.50)	DC	55.	96.02069	(98101124)	AT	(546982.31, 4882145.50)	DC
16.	~~111.05564~~	(99022124)	AT	(546973.00, 4882142.50)	DC	56.	95.88766	(99021924)	AT	(546982.31, 4882145.50)	DC
17.	110.71551	(98011624)	AT	(546926.44, 4882127.50)	DC	57.	95.85745	(99022024)	AT	(546954.38, 4882136.50)	DC
18.	~~110.66850~~	(98020524)	AT	(546963.94, 4882137.50)	DC	58.	95.80865	(00122824)	AT	(546963.69, 4882139.50)	DC
19.	110.04739	(98011624)	AT	(546935.75, 4882130.50)	DC	59.	95.75555	(98020424)	AT	(546963.94, 4882117.50)	DC
20.	~~109.27320~~	(98020524)	AT	(546943.94, 4882117.50)	DC	60.	95.52518	(99092124)	AT	(546963.69, 4882139.50)	DC
21.	~~108.97046~~	(99022124)	AT	(546954.38, 4882136.50)	DC	61.	~~95.46585~~	(98020524)	AT	(546926.44, 4882127.50)	DC
22.	108.82836	(99031324)	AT	(546982.31, 4882145.50)	DC	62.	95.41297	(98040524)	AT	(546991.62, 4882148.50)	DC
23.	108.80155	(98020424)	AT	(546963.69, 4882139.50)	DC	63.	95.30355	(98110224)	AT	(547000.94, 4882151.50)	DC
24.	108.78650	(99022024)	AT	(546963.69, 4882139.50)	DC	64.	95.19001	(96100924)	AT	(546982.31, 4882145.50)	DC
25.	107.31931	(98020424)	AT	(546963.94, 4882137.50)	DC	65.	95.05071	(98022424)	AT	(546963.69, 4882139.50)	DC
26.	106.75824	(99022024)	AT	(546963.94, 4882137.50)	DC	66.	~~94.82833~~	(00120124)	AT	(546963.94, 4882117.50)	DC
27.	106.26422	(98020424)	AT	(546935.75, 4882130.50)	DC	67.	94.82476	(98022424)	AT	(546983.94, 4882137.50)	DC
28.	~~105.16500~~	(00120124)	AT	(546973.00, 4882142.50)	DC	68.	94.47585	(99021924)	AT	(546973.00, 4882142.50)	DC
29.	104.53529	(99031324)	AT	(546963.69, 4882139.50)	DC	69.	94.39902	(99031324)	AT	(546991.62, 4882148.50)	DC
30.	~~104.26127~~	(96091824)	AT	(546983.94, 4882137.50)	DC	70.	94.34206	(96040524)	AT	(546982.31, 4882145.50)	DC
31.	~~104.22757~~	(96091824)	AT	(546973.00, 4882142.50)	DC	71.	94.22748	(99042424)	AT	(546963.69, 4882139.50)	DC
32.	103.35220	(98011624)	AT	(546923.94, 4882117.50)	DC	72.	94.18881	(00122824)	AT	(546963.94, 4882137.50)	DC
33.	103.21508	(99022024)	AT	(546982.31, 4882145.50)	DC	73.	~~94.07465~~	(99022124)	AT	(546982.31, 4882145.50)	DC
34.	102.36460	(98020424)	AT	(546943.94, 4882117.50)	DC	74.	93.42837	(98022424)	AT	(546963.94, 4882137.50)	DC
35.	102.35971	(99031324)	AT	(546963.94, 4882137.50)	DC	75.	93.41358	(99092124)	AT	(546963.94, 4882137.50)	DC
36.	102.03863	(98022424)	AT	(546973.00, 4882142.50)	DC	76.	93.41241	(98022424)	AT	(546991.62, 4882148.50)	DC
37.	101.53760	(99031324)	AT	(546983.94, 4882137.50)	DC	77.	93.24401	(99092124)	AT	(546973.00, 4882142.50)	DC
38.	101.31707	(98011624)	AT	(546917.12, 4882124.50)	DC	78.	92.81638	(98101124)	AT	(546973.00, 4882142.50)	DC
39.	101.04498	(98022424)	AT	(546982.31, 4882145.50)	DC	79.	92.65807	(98090824)	AT	(547000.94, 4882151.50)	DC
40.	99.85610	(00120224)	AT	(546963.69, 4882139.50)	DC	80.	92.60453	(96010224)	AT	(546926.44, 4882127.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S2 , S3A , S4 ,

** CONC OF NOX IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	208.64012	(00120102)	AT	(546982.31, 4882145.50)	DC	41.	204.98157	(96010807)	AT	(546973.00, 4882142.50)	DC
2.	208.20726	(97122018)	AT	(546982.31, 4882145.50)	DC	42.	204.92877	(99022104)	AT	(546991.62, 4882148.50)	DC
3.	207.87703	(98121320)	AT	(546982.31, 4882145.50)	DC	43.	204.90565	(00120121)	AT	(546982.31, 4882145.50)	DC
4.	207.77554	(98020506)	AT	(546973.00, 4882142.50)	DC	44.	204.86723	(98022019)	AT	(546973.00, 4882142.50)	DC
5.	207.33655	(00120216)	AT	(546991.62, 4882148.50)	DC	45.	204.82385	(00012802)	AT	(546982.31, 4882145.50)	DC
6.	207.22180	(98021324)	AT	(546973.00, 4882142.50)	DC	46.	204.74712	(98020618)	AT	(546963.69, 4882139.50)	DC
7.	207.15361	(00120106)	AT	(546973.00, 4882142.50)	DC	47.	204.69698	(96120408)	AT	(546973.00, 4882142.50)	DC
8.	206.77538	(98021403)	AT	(546973.00, 4882142.50)	DC	48.	204.62697	(98020617)	AT	(546963.69, 4882139.50)	DC
9.	206.75627	(98121803)	AT	(546991.62, 4882148.50)	DC	49.	204.55548	(00120107)	AT	(546954.38, 4882136.50)	DC
10.	206.74287	(97020721)	AT	(546963.69, 4882139.50)	DC	50.	204.54108	(00120205)	AT	(546973.00, 4882142.50)	DC
11.	206.71286	(96021507)	AT	(546982.31, 4882145.50)	DC	51.	204.52446	(98120719)	AT	(546973.00, 4882142.50)	DC
12.	206.69633	(99021918)	AT	(546973.00, 4882142.50)	DC	52.	204.51065	(96010808)	AT	(546963.69, 4882139.50)	DC
13.	206.46689	(96010406)	AT	(546982.31, 4882145.50)	DC	53.	204.51033	(96011506)	AT	(546982.31, 4882145.50)	DC
14.	206.20668	(99122716)	AT	(546963.69, 4882139.50)	DC	54.	204.45940	(98022418)	AT	(546973.00, 4882142.50)	DC
15.	206.17232	(99021403)	AT	(546898.50, 4882118.50)	DC	55.	204.40266	(99121308)	AT	(546982.31, 4882145.50)	DC
16.	206.17230	(96120422)	AT	(546898.50, 4882118.50)	DC	56.	204.35667	(98022419)	AT	(546973.00, 4882142.50)	DC
17.	206.17230	(99021404)	AT	(546898.50, 4882118.50)	DC	57.	204.33923	(98020401)	AT	(546973.00, 4882142.50)	DC
18.	206.15994	(98120724)	AT	(546898.50, 4882118.50)	DC	58.	204.33018	(97123002)	AT	(546982.31, 4882145.50)	DC
19.	206.07704	(96010802)	AT	(546982.31, 4882145.50)	DC	59.	204.30870	(98021105)	AT	(546898.50, 4882118.50)	DC
20.	206.00845	(96010323)	AT	(546982.31, 4882145.50)	DC	60.	204.30272	(98010402)	AT	(546973.00, 4882142.50)	DC
21.	205.87138	(96021418)	AT	(546991.62, 4882148.50)	DC	61.	204.28545	(00020419)	AT	(546954.38, 4882136.50)	DC
22.	205.75561	(96011501)	AT	(546982.31, 4882145.50)	DC	62.	204.25183	(99021405)	AT	(546898.50, 4882118.50)	DC
23.	205.75090	(98021401)	AT	(546963.69, 4882139.50)	DC	63.	204.25182	(96020304)	AT	(546898.50, 4882118.50)	DC
24.	205.69420	(98021404)	AT	(546973.00, 4882142.50)	DC	64.	204.20734	(96010805)	AT	(546973.00, 4882142.50)	DC
25.	205.61301	(00122820)	AT	(546973.00, 4882142.50)	DC	65.	204.15457	(98020520)	AT	(546963.69, 4882139.50)	DC
26.	205.60410	(98022404)	AT	(546982.31, 4882145.50)	DC	66.	204.13261	(96120903)	AT	(546898.50, 4882118.50)	DC
27.	205.53535	(96011505)	AT	(546973.00, 4882142.50)	DC	67.	204.11806	(97123007)	AT	(546991.62, 4882148.50)	DC
28.	205.52484	(98021320)	AT	(546973.00, 4882142.50)	DC	68.	204.02345	(98020522)	AT	(546963.69, 4882139.50)	DC
29.	205.51489	(99022022)	AT	(546973.00, 4882142.50)	DC	69.	204.02086	(96010324)	AT	(546991.62, 4882148.50)	DC
30.	205.43933	(96010319)	AT	(546991.62, 4882148.50)	DC	70.	203.97623	(97020721)	AT	(546963.94, 4882137.50)	DC
31.	205.43288	(96010402)	AT	(546973.00, 4882142.50)	DC	71.	203.96446	(99120107)	AT	(546898.50, 4882118.50)	DC
32.	205.40701	(00122722)	AT	(546973.00, 4882142.50)	DC	72.	203.90587	(98020324)	AT	(546954.38, 4882136.50)	DC
33.	205.39041	(99121316)	AT	(546963.69, 4882139.50)	DC	73.	203.87076	(97123003)	AT	(546973.00, 4882142.50)	DC
34.	205.35437	(00012805)	AT	(546982.31, 4882145.50)	DC	74.	203.86513	(97122017)	AT	(546963.69, 4882139.50)	DC
35.	205.34544	(00012723)	AT	(546973.00, 4882142.50)	DC	75.	203.78511	(00120206)	AT	(546963.69, 4882139.50)	DC
36.	205.19968	(97012606)	AT	(546973.00, 4882142.50)	DC	76.	203.78511	(00120207)	AT	(546963.69, 4882139.50)	DC
37.	205.14743	(98022407)	AT	(546973.00, 4882142.50)	DC	77.	203.76636	(00122908)	AT	(546963.69, 4882139.50)	DC
38.	205.11790	(00122807)	AT	(546973.00, 4882142.50)	DC	78.	203.74768	(00020608)	AT	(546963.69, 4882139.50)	DC
39.	205.09590	(97020804)	AT	(546963.69, 4882139.50)	DC	79.	203.66504	(98020521)	AT	(546982.31, 4882145.50)	DC
40.	204.98233	(97021304)	AT	(546991.62, 4882148.50)	DC	80.	203.65712	(99022005)	AT	(546991.62, 4882148.50)	DC

APPENDIX D

STACK TESTING DATA

HOT AIR CONSULTING

MEMORANDUM

TO: ACME Waste Inc. REF. NO.: 123456

FROM: Hot Air Consulting DATE: November 2008

RE: Source Testing Results-Executive Summary
ACME Anyothertown Composting Facility, Anyothertown, Ontario

EXECUTIVE SUMMARY

This memorandum has been prepared to summarize the methodology and results of source testing performed at the ACME Anyothertown Composting Facility in Anyothertown, Ontario.
The source testing was performed based on the methodology approved by the Ministry of the Environment (MOE) in October 2008.

The sampling was performed on November 1 to 3, 2008.

Sampling was performed for particulate, odour, ammonia and sulfur compounds.

Results from this source testing are presented in the tables attached.

…

TABLE 1

SUMMARY OF PARTICUALTE TESTING RESULTS
ACME WASTE INC. - ANYOTHERTOWN COMPOSTING FACILITIY
ANYOTHERTOWN, ONTARIO

Parameter	*Sample-001 (ug/m3)*	*Sample-002 (ug/m3)*	*Sample-003 (ug/m3)*	*Average Concentration (ug/m3)*
Particulate Matter	44.00	45.00	46.00	45.00

TABLE 2

SUMMARY OF AMMONIA TESTING RESULTS
ACME WASTE INC. - ANYOTHERTOWN COMPOSTING FACILITIY
ANYOTHERTOWN, ONTARIO

Compound	***CAS No.***	***Average In-Stack Concentration (mg/Dsm3)***
Ammonia	7664-41-7	30.00

TABLE 3

SUMMARY OF SULFUR CONTAINING CONTAMINANTS TESTING RESULTS
ACME WASTE INC. - ANYOTHERTOWN COMPOSTING FACILITIY
ANYOTHERTOWN, ONTARIO

Parameter	*Sample-001 (ppm)*	*Sample-002 (ppm)*	*Sample-003 (ppm)*	*Average Concentration (ppm)*	*Average Concentration (mg/m3)*	*Average Concentration Referenced to Methyl Mercaptan (mg/m3)*
Hydrogen Sulfide	0.06	0.08	0.07	0.07	0.10	--
Mercaptans						
Methyl mercaptan	0.08	0.06	0.07	0.07	0.14	0.10
Ethyl Mercaptan	0.05	0.07	0.06	0.06	0.15	0.11
Iso-Propyl mercaptan	0.06	0.05	0.07	0.06	0.19	0.13
ter-Butyl mercaptan	0.05	0.07	0.06	0.06	0.22	0.16
n-Propyl mercaptan	0.07	0.05	0.07	0.06	0.20	0.14
n-Butyl mercaptan	0.07	0.06	0.05	0.06	0.22	0.16
Amyl mercaptan	0.08	0.07	0.06	0.07	0.30	0.21
Total Mercaptan						1.00

TABLE 4

SUMMARY OF LEAF AND YARD WASTE ACTIVE WINDROWS SOURCE TESTING
ACME WASTE INC. - ANYOTHERTOWN COMPOSTING FACILITIY
ANYOTHERTOWN, ONTARIO

Parameter	*Sample-001 (OU/m3)*	*Sample-002 (OU/m3)*	*Sample-003 (OU/m3)*	*Average Flux (OU/m2/s)*
Odour	220.00	190.00	250.00	0.10

Notes
1) Sweep flow rate of 5L/min and area of the chamber being 0.09m2

TABLE 5

SUMMARY OF COMPOST CURING PILES SOURCE TESTING
ACME WASTE INC. - ANYOTHERTOWN COMPOSTING FACILITIY
ANYOTHERTOWN, ONTARIO

Parameter	*Sample-001 (OU/m3)*	*Sample-002 (OU/m3)*	*Sample-003 (OU/m3)*	*Average Flux (OU/m2/s)*
Odour	880	930	950	0.40

Notes
1) Sweep flow rate of 5L/min and area of the chamber being 0.09m2

APPENDIX E

ODOUR IMPACT ASSESSMENT

HOT AIR CONSULTING

MEMORANDUM

TO: ACME Waste Inc. REF. NO.: 123456

FROM: Hot Air Consulting DATE: May 2008

RE: Odour Impact Assessment
ACME Othertown Composting Facility, 5555 Country Lane, Othertown, Ontario

1.0 INTRODUCTION

This memorandum has been prepared to summarize the methodology and results of air dispersion modelling for determination of odour compliance of the ACME Othertown Composing Facility located at 5555 Country Lane in Othertown, Ontario (Facility). The dispersion modelling considered all significant odour-related air emissions potentially released by the Facility. The results of the dispersion modelling would be used to evaluate the Facility's compliance with acceptable odour limits, as prescribed by the Ontario Ministry of the Environment (MOE).

Dispersion modelling for the concentration of odour was performed using the United States Environmental Protection Agency (USEPA) multi-source dispersion model AERMOD, as prescribed by Ontario Regulation 419/05 (Reg. 419). AERMOD is an advanced steady-state plume model that has the ability to incorporate building cavity downwash, actual source parameters, emission rates, terrain and historical meteorological information to predict ground level concentrations (GLCs) at specified locations.

Odour-based dispersion modelling was performed for both a tiered receptor grid and discrete sensitive receptors, as described by Reg. 419, and the MOE technical bulletin entitled, "Methodology for Modelling Assessments with 10-Minute Average Standards and Guidelines under O.Reg. 419/05" dated April 2008.

2.0 MODELLING METHODOLOGY

2.1 General Modelling Approach

As per the April 2008 technical bulletin, a series of models were performed to determine odour compliance, as described below.

- Step 1: An air dispersion model, constructed as prescribed by O.Reg. 419/05, using a tiered receptor grid, is modelled for a 1-hour averaging period at ground level. All modelled results are then converted to a 10-minute averaging period. The removal of meteorological anomalies is allowed to determine the maximum compliance odour value. After this is done, if the odour-based guideline of 1 odour unit (OU) is not exceeded at any modelled point, no further modelling is required. If the odour-based guideline is exceeded, further modelling is required.
- Step 2: An air dispersion model, with discrete receptors located at all locations where human activities may occur, is modelled for a 1-hour averaging period. All modelled results are then converted to a 10-minute averaging period. The removal of meteorological anomalies is not allowed to determine the maximum compliance odour value. After this is done, if the odour-based guideline of 1 OU is not

exceeded at any discrete receptor, no further modelling is required. If the odour-based guideline is exceeded, further modelling is required.

- Step 3: An air dispersion model, with a discrete receptor located where human activities may occur, is modelled for a 1-hour averaging period. All modelled results are then converted to a 10-minute averaging period. A frequency analysis is then performed to determine the frequency of time the discrete receptor is below 1 OU.

2.2 Model Executables

The following USEPA executables were used in the assessment:

- AERMOD digital terrain pre-processor (AERMAP), version 09040;
- AERMIC air dispersion model (AERMOD), version 09292; and
- Building Profile Input Program (BPIP), version 04274.

2.3 Meteorological Data

Five years of local meteorological data was obtained from the MOE for use in the assessment. The meteorological data is from the Othertown Weather Station, and was processed by MOE with land-use classifications for the Facility locale. The meteorology covers the dates from January 1, 1996 to December 31, 2000. The hourly data included many factors which affect the dispersion of air contaminants including wind speed, wind direction, temperature, ceiling height, and atmospheric stability.

2.4 Averaging Periods and Time-Based Concentration Conversion

Odour levels are based on 10-minute peak concentrations of 1 OU. An OU for a compound is defined as a threshold where 50 percent of the population would detect, but not identify, the odiferous compound. This definition is normally applied at sensitive receptors. Sensitive receptors may include residences, camping grounds, schools, community centres, day care centres, recreational centres and outdoor public recreational areas, or any other locations as specified by MOE.

All concentrations at the receptors were modelled. As AERMOD cannot model averaging periods less than 1 hour, the 1-hour averaging period was used with the resulting predicted concentrations converted to the shorter 10-minute averaging period using the MOE conversion factor of 1.65.

2.5 Digital Elevation Model Data

Digital elevation model (DEM) data was obtained from the MOE. The DEM data was used to include the effects of terrain in the modelling. The terrain used is from the DEM dataset “tileOthertown”.

DEM data was preprocessed with AERMAP for use with AERMOD.

2.6 Source Input Parameters

Odour sources at the Facility were modelled as area sources or point sources based on their physical description. Area source and point source parameters and locations were based on information provided by Facility personnel and site drawings. All sources were conservatively assumed to be operating simultaneously, continuously, and at maximum emission rates.

Based on Facility provided information, the biofilter bed and the windrows were identified as the significant sources at the Facility that would emit odour.

A summary of the AERMOD source input parameters and odour emission rates are provided in Table 1. The Facility property boundary and the locations of the modelled sources are shown on Figure 1.

2.7 Tiered Receptors and Discrete Sensitive Receptors

Two sets of receptors were used in the assessment:

- a tiered receptor grid, located at ground level, for use with the Step 1 model; and
- a series of discrete sensitive receptors for use with the Step 2 and Step 3 models.

The tiered receptor grid was defined based on a bounding box that encapsulates all the modelled sources. The grid was then tiered starting from the edge of the bounding box with a fine resolution, and progressing to coarser resolutions at further distances. All tiered distances were defined relative to the bounding box. The receptor grid used is described as follows:

- bounding box origin (SW corner)(X,Y): 546,883.9, 4,882,137.7 (m);
- size (width, height): 189.3, 247.1 (m);
- 20 m spacing within 200 m of the edge of the bounding box;
- 50 m spacing from 200 m to 500 m;
- 100 m spacing from 500 to 1,000 m;
- 200 m spacing from 1,000 to 2,000 m; and
- 500 m spacing from 2,000 to 5,000 m.

A property line ground level receptor grid with 10 m spacing was used to evaluate the maximum property boundary concentration. No receptors were placed inside the Facility's property line.

For the discrete sensitive receptors, a series of receptors were sited at locations of human activities and elevated to 1.5 metres above grade, the approximate height of the human breathing zone. The locations for each receptor was selected based on the MOE's definition of a sensitive receptor, as follows:

> *"...any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from odour discharges from the Facility, including one or a combination of:*

(a) private residences or public facilities where people sleep…

(b) institutional facilities …

(c) outdoor public recreational areas …

(d) commercial areas where there are continuous public activities."

A total of two sensitive residential receptors, sensitive receptor-1 and sensitive receptor-2, were identified that may be adversely affected by odour from the Facility. All receptors were residential. The locations of these receptors are presented in Figure 2.

2.8 On-Site Building Data

All on-site Facility buildings were modelled in AERMOD to account for building cavity downwash. Cavity downwash can result in air contaminants being forced to ground level prematurely under certain meteorological conditions, which can result in higher than expected near-field odour levels.

The USEPA Building Profile Input Program (BPIP) was used to calculate downwash effects for use with the AERMOD. All modelled buildings are presented in Figure 1.

2.9 Frequency Analysis

Step 3 models were required to assess both frequency impacts and determining the compliance odour concentration at the most impacted sensitive receptors. The frequency analysis was performed using the POSTFILE output option in AERMOD to calculate the 1-hour concentrations at the sensitive receptors for each single hour across the entire five year meteorological period. The concentrations calculated were then converted to a 10-minute averaging period to determine the frequency distribution at each receptor.

3.0 DISPERSION MODELLING RESULTS

All odour models were developed and executed following the methodology described above.

The five years of meteorological data included over 43,800 hours of data. The AERMOD model was run to calculate the maximum 1-hour ground level concentration (GLC) for odour. The meteorological conditions, which would result in the maximum odour concentrations, would typically be stable atmospheric conditions such as an inversion with low wind speed. The maximum hour out of 43,800 hours of data would not occur at each grid point simultaneously since the wind can only blow in one direction during one hour.

3.1 Step 1 Analysis

As per Step 1 of the technical bulletin, a tiered receptor grid was used to calculate the maximum 1-hour odour concentrations at each receptor location. The 1-hour concentrations were then converted to 10-minute concentrations using the MOE time-based conversion factor of 1.65. As per MOE guidelines, for each modelled year the eight meteorological 1-hour periods that resulted in the highest eight GLCs were identified and removed. This resulted in the removal of a total of 40 hours from evaluation. After the removal of

meteorological anomalies, the maximum odour GLC was calculated at 77.3 OU. As this GLC did not meet the 1 OU odour guideline, the Step 2 analysis was performed.

The Step 1 maximum 10-minute odour concentration isopleths are presented in Figure 3. A summary of the hours removed from the analysis is provided in Table 2.

3.2 Step 2 Analysis

As per Step 2 of the technical bulletin, receptors were used to calculate the maximum 1-hour odour concentration at each sensitive receptor location. The 1-hour concentrations were then converted to 10-minute concentrations using the MOE time-based conversion factor of 1.65. No meteorological outliers were removed from the Step 2 analysis. The maximum odour concentration at Sensitive Receptor-1 was calculated at 2.19 OU, and at Sensitive Receptor-2 was calculated at 0.28 OU. As the odour concentration at Sensitive Receptor-1 did not meet the 1 OU odour guideline for all sensitive receptors, a Step 3 analysis was performed for this sensitive receptor.

3.3 Step 3 Analysis

As per Step 3 of the technical bulletin, the maximum 1-hour odour concentrations for all hours in the meteorological dataset for each sensitive receptor. The 1-hour concentrations were recorded using the POSTFILE option in AERMOD. The resultant 1-hour concentrations were then converted to 10-minute concentrations using the MOE time-based conversion factor of 1.65. The 10-minute concentrations were then sorted into odour bins of 0.1 OU increments to evaluate for frequency.

Based on the Step 3 analysis, the odour concentration for the most impacted sensitive receptor (residence) was determined to be less than 1 OU at least 99.59% of the time, which occurs during the assessment years 1999 and 2000. As previously stated, the maximum odour concentration at POR-2 was calculated at less than 1.0 OU, and therefore a frequency analysis for this receptor was not performed.

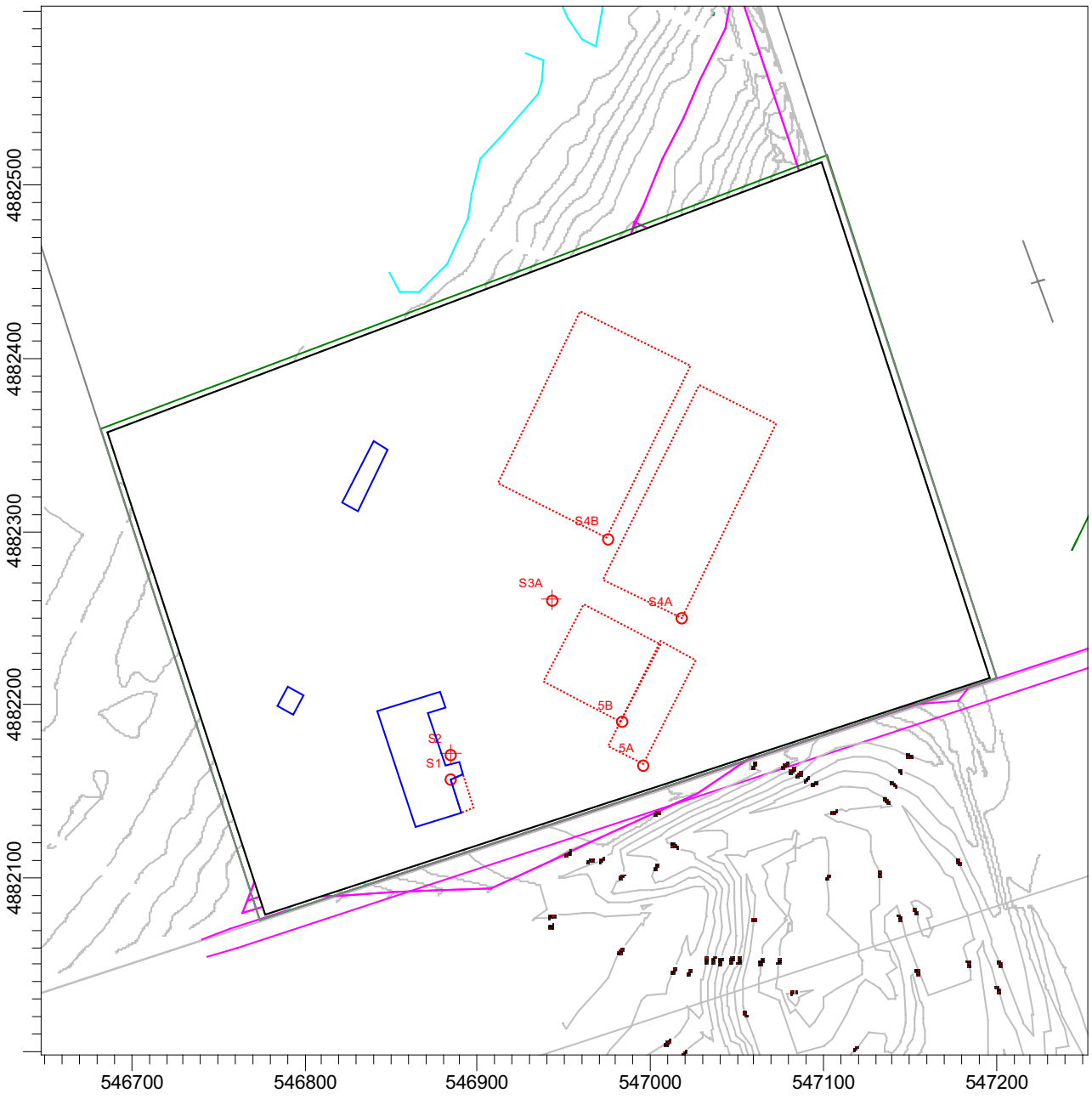
The frequency distribution by year for sensitive receptor-1 are summarized in Table 3.

4.0 ODOUR MANAGEMENT PLAN

Although this memorandum indicates that the expected odour impact from this Facility is below the MOE guideline of 1 o.u., the Facility must implement an Odour Management Plan to prevent odour emission that may be fugitive in nature or that may result during start-up and commissioning of the Facility. Some of the measures that should be included in this plan include ensuring that the composting building maintains negative pressure under static conditions, implementation of a fugitive odour control plan, operation of bay doors, and prevention of cross contamination into storm water pond. This report does not account for the fugitive emissions outlined above.

PROJECT TITLE:

FIGURE 1
FACILITY PROPERTY BOUNDARY, BUILDINGS, AND SOURCES



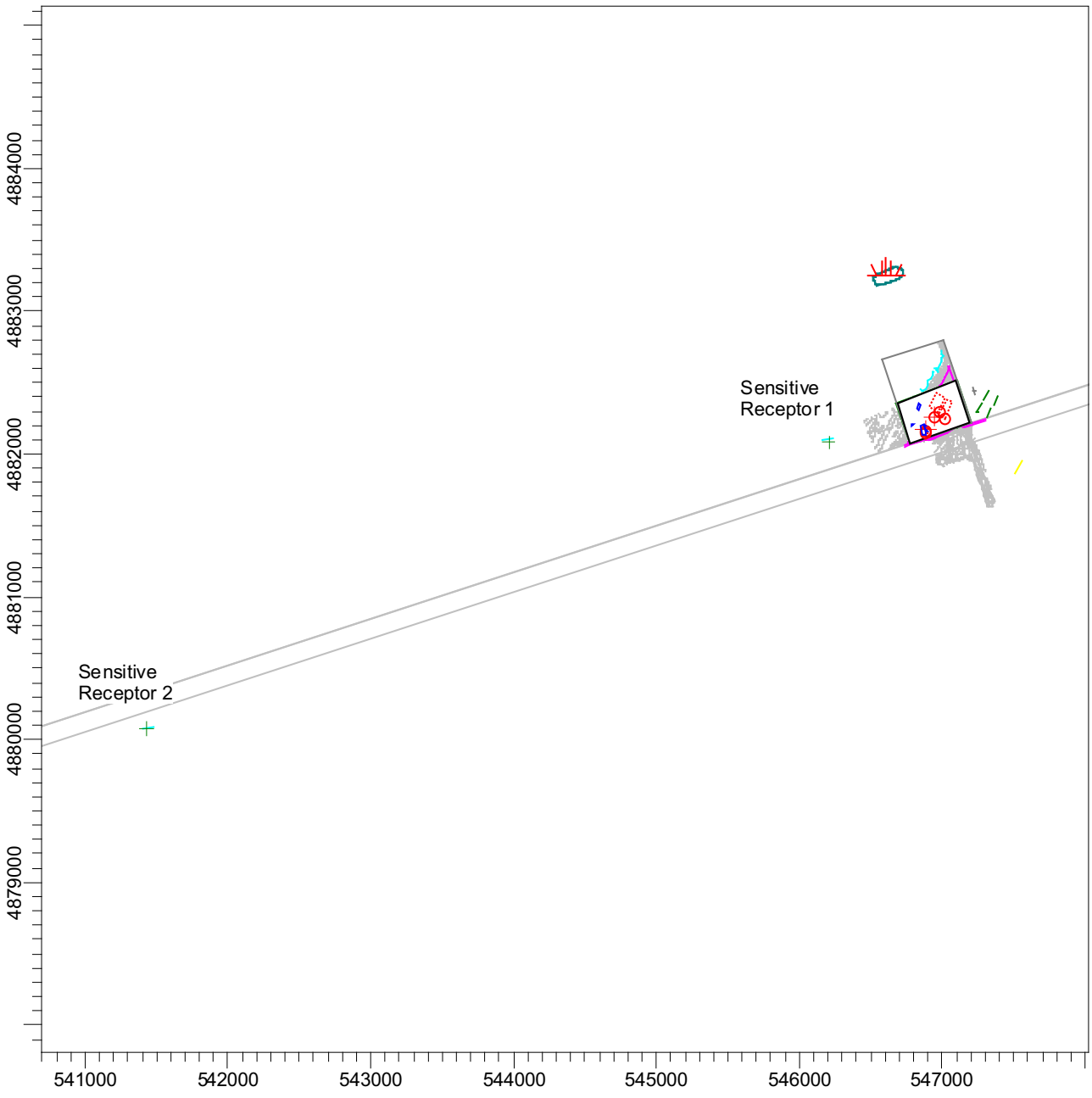
COMMENTS:	SOURCES: **7**	COMPANY NAME: **ACME OTHERTOWN COMPOSTING FACILITY, OTHERTOWN, ONTARIO**	
	RECEPTORS: **154**		
		SCALE: 1:3,694 0 0.1 km	
		03/12/2008	PROJECT NO.: **123456**

AERMOD View - Lakes Environmental Software

C:\53469_ACME\ACME_Odour\Tier1a.isc

PROJECT TITLE:

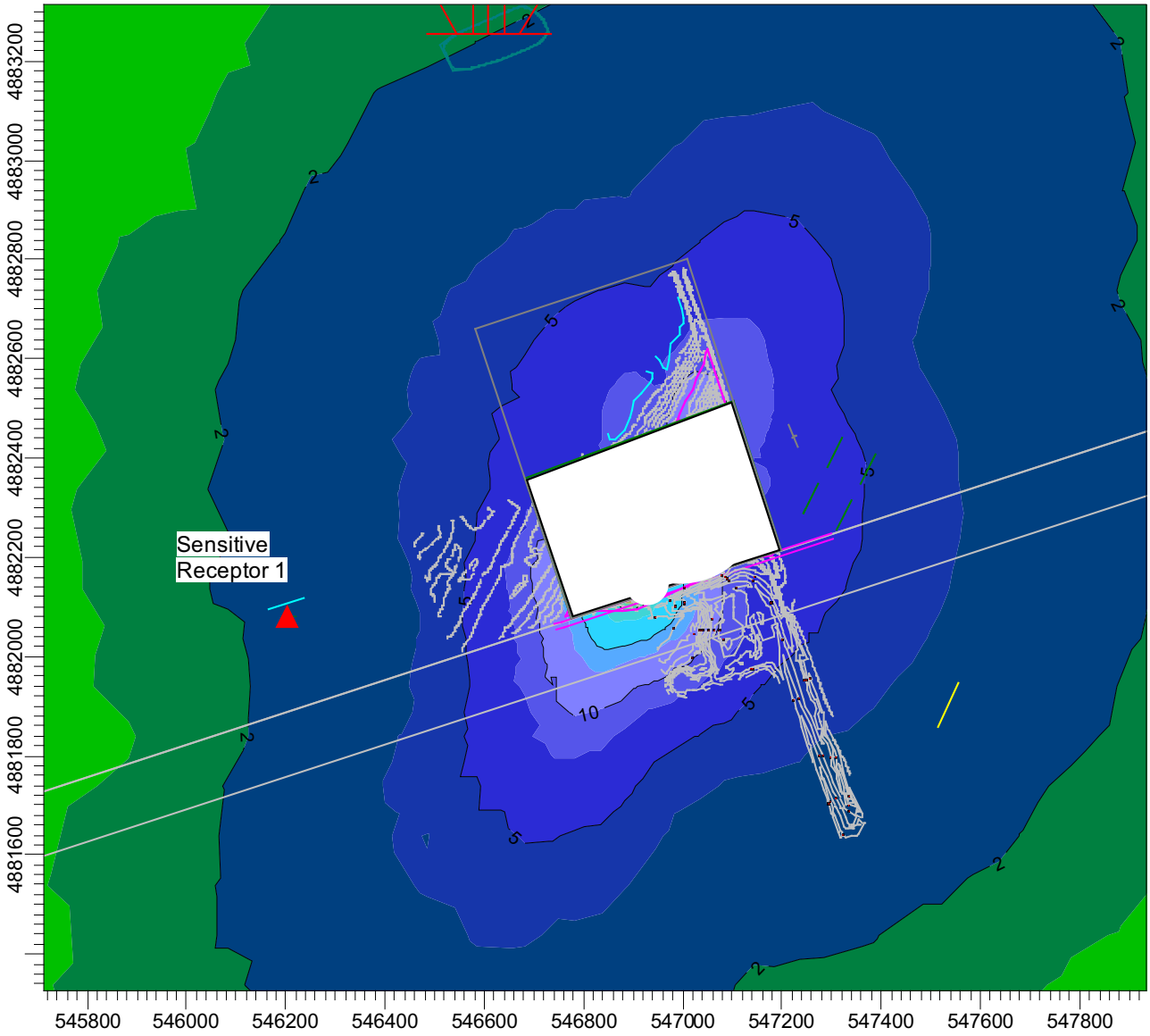
FIGURE 2
LOCATION OF SENSITIVE RECEPTORS



COMMENTS:	SOURCES: **5**	COMPANY NAME: **ACME OTHERTOWN COMPOSTING FACILITY, OTHERTOWN, ONTARIO**	
	RECEPTORS: **154**	MODELER:	
		SCALE: 1:44,729 0 1 km	
		03/12/2008	PROJECT NO.: **123456**

PROJECT TITLE:

FIGURE 3
STEP 1 MAXIMUM 10-MINUTE ODOUR CONCENTRATION



PLOT FILE OF HIGH 1ST HIGH 10.0-MIN VALUES FOR SOURCE GROUP: ALL OU

0.0 0.2 0.5 1.0 2.0 5.0 10.0 20.0 50.0 80.0

COMMENTS:

After removal of meteorological outliers, the maximum odour concentration was calculated at 77.3 OU.

The maximum predicted odour at sensitive receptor 1 was calculated at 2.2 OU.

SOURCES: **7**

RECEPTORS: **154**

OUTPUT TYPE: **Concentration**

MAX: **80.59644 OU**

COMPANY NAME: **ACME OTHERTOWN COMPOSTING FACILITY, OTHERTOWN, ONTARIO**

SCALE: 1:13,564

0 0.5 km

03/12/2008

PROJECT NO.: **123456**

Table 1

AERMOD Odour Dispersion Modelling Source Parameters
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Source Identifier	*Description*	*Source Type*	*UTM Coordinates*		*Exit Height*	*Exit Temperature*	*Exit Diameter*	*Exit Velocity*	*Maximum Modelled Emission Rate*
			X (m)	*Y (m)*	*(m)*	*(K)*	*(m)*	*(m/s)*	*(ou/m^3/s)$^{-6}$*
S-1	Biofilter	point	546899.34	4882151.34	12	313.15	0.8	15.02	9.06E-03

Source Identifier	*Description*	*Source Type*	*UTM Coordinates*		*Exit Height*	*Length of Side*		*Angle from North*	*Maximum Modelled Emission Rate*
			X (m)	*Y (m)*	*(m)*	*X-Side (m)*	*Y-Side (m)*	*(degrees)*	*(ou/m2/s)$^{-6}$*
S-4A	Active Windrows	area	547,018.0	4,882,250.0	3.0	125.0	50.0	296.5	1.00E-07
S-4B	Curing Piles	area	546,975.1	4,882,296.3	3.0	110.4	70.8	296.5	4.00E-07
S-5A	Stump/Leaf & Yard Storage	area	546,995.7	4,882,165.6	3.0	67.9	22.5	296.6	1.00E-07
S-5B	Leaf & Yard Preprocessing	area	546,983.1	4,882,190.5	3.0	50.0	49.8	296.7	1.00E-07

Table 2

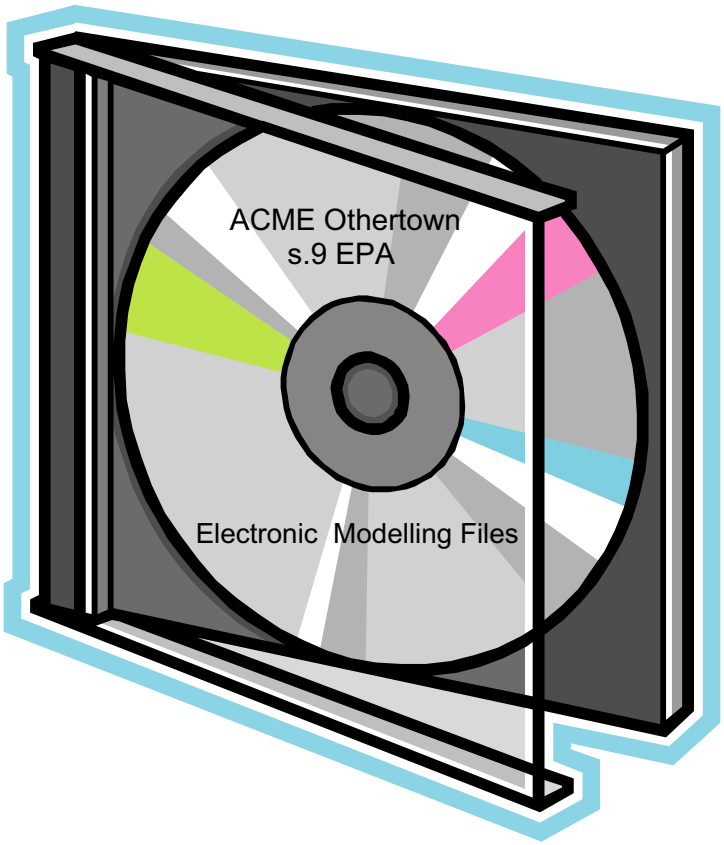
Step 1 Identified Meteorological Outlier Hours
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Summary of Hours by Model Year									
1996		*1997*		*1998*		*1999*		*2000*	
Rank	***Date (yymmddhh)***	***Rank***	***Date (yymmddhh)***	***Rank***	***Date (yymmddhh)***	***Rank***	***Date (yymmddhh)***	***Rank***	***Date (yymmddhh)***
1	96120422	13	97010403	4	98120724	2	99021403	12	00120717
7	96020304	14	97122201	5	98021105	3	99021404	18	00121502
8	96120903	20	97101204	16	98021002	6	99021405	57	00120906
21	96090323	31	97101305	17	98111803	9	99120107	69	00012304
25	96020401	32	97122110	19	98021505	10	99012523	71	00110207
27	96120504	34	97120823	22	98120501	11	99010807	96	00103103
28	96091105	40	97021709	23	98121409	15	99021408	99	00110202
35	96010609	41	97121201	24	98120802	33	99012908	109	00050405

Table 3

10-Minute Annual Compliance Odour Concentrations and Frequency Distribution at Sensitive Receptors
ACME Waste Inc. - Othertown Composting Facility
Othertown, Ontario

Sensitive Receptor	*Year*	*Frequency less than 1 OU (%)*	*Odour Bins (OU)*																				
			<=0.1	*0.1-0.2*	*0.2-0.3*	*0.3-0.4*	*0.4-0.5*	*0.5-0.6*	*0.6-0.7*	*0.7-0.8*	*0.8-0.9*	*0.9-1.0*	*1.0-1.1*	*1.1-1.2*	*1.2-1.3*	*1.3-1.4*	*1.4-1.5*	*1.5-1.6*	*1.6-1.7*	*1.7-1.8*	*1.8-1.9*	*1.9-2.0*	*2.0-2.1*	*2.1-2.2*	*>2.2*
Sensitive Receptor 1 (residence)			**Frequency Distribution by Year (%)**																						
	1996	99.63	98.54%	0.35%	0.19%	0.06%	0.08%	0.06%	0.08%	0.09%	0.11%	0.07%	0.09%	0.05%	0.09%	0.05%	0.02%	0.01%	0.02%	0.01%	0.02%	0.00%	0.00%	0.00%	0.00%
	1997	99.62	98.79%	0.35%	0.08%	0.07%	0.09%	0.03%	0.08%	0.06%	0.02%	0.05%	0.06%	0.07%	0.07%	0.07%	0.03%	0.02%	0.03%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%
	1998	99.69	98.61%	0.39%	0.13%	0.08%	0.09%	0.10%	0.11%	0.08%	0.07%	0.03%	0.06%	0.05%	0.06%	0.02%	0.02%	0.03%	0.01%	0.00%	0.01%	0.02%	0.01%	0.01%	0.00%
	1999	99.59	98.24%	0.22%	0.22%	0.16%	0.09%	0.10%	0.16%	0.13%	0.13%	0.14%	0.06%	0.07%	0.06%	0.06%	0.06%	0.02%	0.03%	0.02%	0.00%	0.01%	0.00%	0.03%	0.00%
	2000	99.59	97.65%	0.56%	0.28%	0.09%	0.14%	0.16%	0.23%	0.24%	0.11%	0.13%	0.09%	0.07%	0.11%	0.03%	0.05%	0.01%	0.03%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%


ACME Othertown
s.9 EPA
Electronic Modelling Files

```
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 6.1.0
** Lakes Environmental Software Inc.
** Date: 8/28/2009
** File: C:\53469_ACME\ACME_Odour\Tier1.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE Site-Wide Odour, Tier 1
   TITLETWO ACME Othertown Composting Facility, Othertown, Ontario
   MODELOPT DFAULT CONC
   AVERTIME 1
   POLLUTID ODOUR
   RUNORNOT RUN
   EVENTFIL Tier1.evi DETAIL
   SAVEFILE Tier1.sv1 5
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION S1 POINT 546899.340 4882151.340 495.000
** DESCRSRC biofilter
   LOCATION S4A AREA 547018.012 4882250.034 494.330
** DESCRSRC active windrows
   LOCATION S4B AREA 546975.080 4882296.330 493.600
** DESCRSRC curing piles
   LOCATION S5A AREA 546995.710 4882165.580 495.000
** DESCRSRC Stump/Leaf & Yard Storage
   LOCATION S5B AREA 546983.050 4882190.460 495.000
** DESCRSRC Leaf & Yard Preprocessing
** Source Parameters **
   SRCPARAM S1 4.442E-06 1.000 20.000 8.000 71.991
   SRCPARAM S4A 1.0E-07 3.000 125.000 50.000 296.486
   SRCPARAM S4B 1.5005E-07 3.000 110.380 70.820 -63.531
   SRCPARAM S5A 1.0E-07 3.000 67.850 22.540 296.649
   SRCPARAM S5B 1.0E-07 3.000 49.970 49.840 296.679

** Building Downwash **
   BUILDHGT S1          0.00    11.00    11.00    11.00    11.00    11.00
   BUILDHGT S1         11.00    11.00    11.00    11.00    11.00    11.00
   BUILDHGT S1         11.00    11.00    11.00    11.00     0.00     0.00
   BUILDHGT S1          0.00    11.00    11.00    11.00    11.00    11.00
   BUILDHGT S1         11.00    11.00    11.00    11.00    11.00    11.00
   BUILDHGT S1         11.00    11.00    11.00    11.00     0.00     0.00

   BUILDWID S1         57.67    65.22    70.80    74.22    75.39    74.27
```

```
 *** AERMOD - VERSION 07026 ***     *** Site-Wide Odour, Tier 1                                          ***         09/09/09
                                    *** ACME Othertown Composting Facility, Othertown, Ontario            ***         14:27:38
**MODELOPTs:                                                                                                        PAGE    1
CONC                          DFAULT ELEV

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO GAS DRY DEPOSITION Data Provided.

**Model Uses RURAL Dispersion Only.

**Model Uses Regulatory DEFAULT Options:
           1. Stack-tip Downwash.
           2. Model Accounts for ELEVated Terrain Effects.
           3. Use Calms Processing Routine.
           4. Use Missing Data Processing Routine.
           5. No Exponential Decay

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR

**This Run Includes:     5 Source(s);      and    2392 Receptor(s)

**The Model Assumes A Pollutant Type of:  ODOUR

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
        Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
        Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
        Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   278.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.3 MB of RAM.

**File Created for Event Model:  Tier1.evi
**File for Saving Result Arrays: Tier1.sv1
```

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF ODOUR IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	1ST HIGH VALUE IS	48.84633	ON 96120422: AT (546898.50, 4882118.50, 495.00, 495.00, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** Message Summary : AERMOD Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 16 Warning Message(s)
A Total of 955 Informational Message(s)

A Total of 0 Calm Hours Identified

A Total of 955 Missing Hours Identified (2.18 Percent)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
SO W320 49 PPARM :Input Parameter May Be Out-of-Range for Parameter QS
SO W320 49 PPARM :Input Parameter May Be Out-of-Range for Parameter VS
SO W320 50 PPARM :Input Parameter May Be Out-of-Range for Parameter QS
SO W320 50 PPARM :Input Parameter May Be Out-of-Range for Parameter VS
SO W320 51 APARM :Input Parameter May Be Out-of-Range for Parameter ANGLE
MX W441 19928 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041008
MX W441 19929 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041009
MX W441 19930 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041010
MX W441 19931 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041011
MX W441 19932 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041012
MX W441 19933 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041013
MX W441 19934 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041014
MX W441 19935 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041015
MX W441 19936 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041016
MX W441 19937 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041017
MX W441 19938 METQA :Vert Pot Temp Grad abv ZI set to min .005, KURDAT= 98041018

****
*** AERMOD Finishes Successfully ***
****

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	48.84633	(96120422)	AT	(546898.50, 4882118.50)	DC	41.	46.35696	(97121201)	AT	(546907.75, 4882121.50)	DC
2.	48.84633	(99021403)	AT	(546898.50, 4882118.50)	DC	42.	46.35695	(96122621)	AT	(546907.75, 4882121.50)	DC
3.	48.84633	(99021404)	AT	(546898.50, 4882118.50)	DC	43.	46.33357	(98012808)	AT	(546907.75, 4882121.50)	DC
4.	48.84531	(98120724)	AT	(546898.50, 4882118.50)	DC	44.	46.27649	(99120106)	AT	(546903.94, 4882117.50)	DC
5.	48.40631	(98021105)	AT	(546898.50, 4882118.50)	DC	45.	46.17042	(99092424)	AT	(546898.50, 4882118.50)	DC
6.	48.39640	(99021405)	AT	(546898.50, 4882118.50)	DC	46.	46.14123	(96022602)	AT	(546903.94, 4882117.50)	DC
7.	48.39639	(96020304)	AT	(546898.50, 4882118.50)	DC	47.	46.02655	(96120424)	AT	(546898.50, 4882118.50)	DC
8.	48.36807	(96120903)	AT	(546898.50, 4882118.50)	DC	48.	46.02414	(96052301)	AT	(546898.50, 4882118.50)	DC
9.	48.32207	(99120107)	AT	(546898.50, 4882118.50)	DC	49.	45.90046	(97020909)	AT	(546898.50, 4882118.50)	DC
10.	48.19451	(99012523)	AT	(546898.50, 4882118.50)	DC	50.	45.88445	(97020903)	AT	(546903.94, 4882117.50)	DC
11.	48.18099	(99010807)	AT	(546898.50, 4882118.50)	DC	51.	45.88445	(96020306)	AT	(546903.94, 4882117.50)	DC
12.	48.17135	(00120717)	AT	(546898.50, 4882118.50)	DC	52.	45.86646	(96090122)	AT	(546898.50, 4882118.50)	DC
13.	47.67355	(97010403)	AT	(546898.50, 4882118.50)	DC	53.	45.84630	(96011105)	AT	(546898.50, 4882118.50)	DC
14.	47.42984	(97122201)	AT	(546898.50, 4882118.50)	DC	54.	45.83707	(98020903)	AT	(546903.94, 4882117.50)	DC
15.	47.33471	(98021002)	AT	(546898.50, 4882118.50)	DC	55.	45.78071	(98021003)	AT	(546898.50, 4882118.50)	DC
16.	47.32352	(99021408)	AT	(546898.50, 4882118.50)	DC	56.	45.77749	(99042022)	AT	(546898.50, 4882118.50)	DC
17.	47.21412	(98111803)	AT	(546898.50, 4882118.50)	DC	57.	45.76214	(97090905)	AT	(546898.50, 4882118.50)	DC
18.	47.16739	(00121502)	AT	(546907.75, 4882121.50)	DC	58.	45.76214	(97101905)	AT	(546898.50, 4882118.50)	DC
19.	47.14352	(98021505)	AT	(546907.75, 4882121.50)	DC	59.	45.76213	(96100424)	AT	(546898.50, 4882118.50)	DC
20.	47.14143	(97101204)	AT	(546898.50, 4882118.50)	DC	60.	45.76213	(97101902)	AT	(546898.50, 4882118.50)	DC
21.	47.10945	(96090323)	AT	(546898.50, 4882118.50)	DC	61.	45.76138	(00120906)	AT	(546898.50, 4882118.50)	DC
22.	47.08035	(98120501)	AT	(546907.75, 4882121.50)	DC	62.	45.70608	(96120423)	AT	(546907.75, 4882121.50)	DC
23.	47.08034	(98121409)	AT	(546907.75, 4882121.50)	DC	63.	45.68817	(99011201)	AT	(546903.94, 4882117.50)	DC
24.	47.00080	(98120802)	AT	(546907.75, 4882121.50)	DC	64.	45.64038	(99012522)	AT	(546898.50, 4882118.50)	DC
25.	46.99736	(96020401)	AT	(546898.50, 4882118.50)	DC	65.	45.61618	(96101703)	AT	(546898.50, 4882118.50)	DC
26.	46.84278	(98090301)	AT	(546898.50, 4882118.50)	DC	66.	45.59835	(99050524)	AT	(546898.50, 4882118.50)	DC
27.	46.80836	(96120504)	AT	(546907.75, 4882121.50)	DC	67.	45.52968	(98121716)	AT	(546907.75, 4882121.50)	DC
28.	46.78037	(96091105)	AT	(546898.50, 4882118.50)	DC	68.	45.44550	(98111804)	AT	(546907.75, 4882121.50)	DC
29.	46.78037	(98090103)	AT	(546898.50, 4882118.50)	DC	69.	45.43479	(00012304)	AT	(546898.50, 4882118.50)	DC
30.	46.78036	(98091703)	AT	(546898.50, 4882118.50)	DC	70.	45.36731	(97101904)	AT	(546907.75, 4882121.50)	DC
31.	46.78036	(97101305)	AT	(546898.50, 4882118.50)	DC	71.	45.36730	(00110207)	AT	(546907.75, 4882121.50)	DC
32.	46.74005	(97122110)	AT	(546898.50, 4882118.50)	DC	72.	45.21237	(98121609)	AT	(546898.50, 4882118.50)	DC
33.	46.63195	(99012908)	AT	(546898.50, 4882118.50)	DC	73.	45.15243	(98010516)	AT	(546903.94, 4882117.50)	DC
34.	46.59185	(96091024)	AT	(546898.50, 4882118.50)	DC	74.	44.99965	(96050704)	AT	(546898.50, 4882118.50)	DC
35.	46.58920	(97120823)	AT	(546907.75, 4882121.50)	DC	75.	44.96826	(98092905)	AT	(546907.75, 4882121.50)	DC
36.	46.58918	(96010609)	AT	(546907.75, 4882121.50)	DC	76.	44.96255	(97010201)	AT	(546907.75, 4882121.50)	DC
37.	46.57718	(96022105)	AT	(546898.50, 4882118.50)	DC	77.	44.96255	(96122617)	AT	(546907.75, 4882121.50)	DC
38.	46.57718	(96022102)	AT	(546898.50, 4882118.50)	DC	78.	44.90897	(96092420)	AT	(546907.75, 4882121.50)	DC
39.	46.54361	(99012521)	AT	(546903.94, 4882117.50)	DC	79.	44.82915	(96090203)	AT	(546907.75, 4882121.50)	DC
40.	46.47398	(97021709)	AT	(546907.75, 4882121.50)	DC	80.	44.82915	(96090103)	AT	(546907.75, 4882121.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
81.	44.80606	(97032724)	AT	(546898.50, 4882118.50)	DC	121.	44.08329	(97012106)	AT	(546903.94, 4882117.50)	DC
82.	44.80606	(97041424)	AT	(546898.50, 4882118.50)	DC	122.	44.07911	(97100905)	AT	(546903.94, 4882117.50)	DC
83.	44.78941	(96050403)	AT	(546898.50, 4882118.50)	DC	123.	44.05522	(96092105)	AT	(546907.75, 4882121.50)	DC
84.	44.76096	(97111220)	AT	(546898.50, 4882118.50)	DC	124.	44.05521	(97092403)	AT	(546907.75, 4882121.50)	DC
85.	44.76096	(96101507)	AT	(546898.50, 4882118.50)	DC	125.	44.05521	(96100504)	AT	(546907.75, 4882121.50)	DC
86.	44.74970	(98020724)	AT	(546889.19, 4882115.00)	DC	126.	44.05520	(97092404)	AT	(546907.75, 4882121.50)	DC
87.	44.70135	(97111518)	AT	(546898.50, 4882118.50)	DC	127.	44.04627	(96031203)	AT	(546907.75, 4882121.50)	DC
88.	44.69253	(98091705)	AT	(546898.50, 4882118.50)	DC	128.	44.04627	(99032606)	AT	(546907.75, 4882121.50)	DC
89.	44.62733	(99051602)	AT	(546898.50, 4882118.50)	DC	129.	44.04213	(98091701)	AT	(546903.94, 4882117.50)	DC
90.	44.62283	(98092001)	AT	(546898.50, 4882118.50)	DC	130.	44.03930	(98092407)	AT	(546907.75, 4882121.50)	DC
91.	44.62281	(97091403)	AT	(546898.50, 4882118.50)	DC	131.	43.99654	(97012617)	AT	(546889.19, 4882115.00)	DC
92.	44.57773	(99091907)	AT	(546907.75, 4882121.50)	DC	132.	43.97572	(96090501)	AT	(546907.75, 4882121.50)	DC
93.	44.57567	(99042705)	AT	(546898.50, 4882118.50)	DC	133.	43.95784	(96111902)	AT	(546907.75, 4882121.50)	DC
94.	44.55442	(96101622)	AT	(546907.75, 4882121.50)	DC	134.	43.93941	(97090201)	AT	(546907.75, 4882121.50)	DC
95.	44.49398	(96010602)	AT	(546889.19, 4882115.00)	DC	135.	43.92298	(96040901)	AT	(546898.50, 4882118.50)	DC
96.	44.46587	(96050802)	AT	(546898.50, 4882118.50)	DC	136.	43.91674	(00121505)	AT	(546889.19, 4882115.00)	DC
97.	44.43836	(96010703)	AT	(546903.94, 4882117.50)	DC	137.	43.85605	(97052724)	AT	(546907.75, 4882121.50)	DC
98.	44.40861	(00103103)	AT	(546898.50, 4882118.50)	DC	138.	43.84023	(99010810)	AT	(546903.94, 4882117.50)	DC
99.	44.38033	(96031205)	AT	(546907.75, 4882121.50)	DC	139.	43.83598	(98042904)	AT	(546898.50, 4882118.50)	DC
100.	44.37308	(98090104)	AT	(546903.94, 4882117.50)	DC	140.	43.82655	(96110924)	AT	(546903.94, 4882117.50)	DC
101.	44.37306	(00110202)	AT	(546903.94, 4882117.50)	DC	141.	43.81577	(98092406)	AT	(546907.75, 4882121.50)	DC
102.	44.37304	(96111704)	AT	(546903.94, 4882117.50)	DC	142.	43.80820	(96091302)	AT	(546907.75, 4882121.50)	DC
103.	44.31717	(97041502)	AT	(546907.75, 4882121.50)	DC	143.	43.79867	(96111706)	AT	(546903.94, 4882117.50)	DC
104.	44.28484	(96050805)	AT	(546907.75, 4882121.50)	DC	144.	43.76357	(00021208)	AT	(546889.19, 4882115.00)	DC
105.	44.28483	(97042905)	AT	(546907.75, 4882121.50)	DC	145.	43.76315	(99012518)	AT	(546898.50, 4882118.50)	DC
106.	44.28481	(96032407)	AT	(546907.75, 4882121.50)	DC	146.	43.76127	(98050605)	AT	(546907.75, 4882121.50)	DC
107.	44.28051	(96091022)	AT	(546903.94, 4882117.50)	DC	147.	43.74904	(99050122)	AT	(546898.50, 4882118.50)	DC
108.	44.26273	(99091805)	AT	(546903.94, 4882117.50)	DC	148.	43.70762	(96110921)	AT	(546903.94, 4882117.50)	DC
109.	44.26272	(98091805)	AT	(546903.94, 4882117.50)	DC	149.	43.70459	(97121205)	AT	(546903.94, 4882117.50)	DC
110.	44.26271	(96102604)	AT	(546903.94, 4882117.50)	DC	150.	43.65332	(99020708)	AT	(546889.19, 4882115.00)	DC
111.	44.22293	(00050405)	AT	(546907.75, 4882121.50)	DC	151.	43.62395	(99010808)	AT	(546903.94, 4882117.50)	DC
112.	44.19507	(97020905)	AT	(546898.50, 4882118.50)	DC	152.	43.57417	(97042101)	AT	(546907.75, 4882121.50)	DC
113.	44.18689	(97012618)	AT	(546898.50, 4882118.50)	DC	153.	43.54353	(98122105)	AT	(546907.75, 4882121.50)	DC
114.	44.17896	(99010806)	AT	(546907.75, 4882121.50)	DC	154.	43.52633	(97100707)	AT	(546903.94, 4882117.50)	DC
115.	44.17072	(96090324)	AT	(546903.94, 4882117.50)	DC	155.	43.51571	(98112901)	AT	(546907.75, 4882121.50)	DC
116.	44.17072	(96101623)	AT	(546903.94, 4882117.50)	DC	156.	43.41236	(97102403)	AT	(546898.50, 4882118.50)	DC
117.	44.17071	(96092520)	AT	(546903.94, 4882117.50)	DC	157.	43.41236	(00111305)	AT	(546898.50, 4882118.50)	DC
118.	44.12978	(96120905)	AT	(546889.19, 4882115.00)	DC	158.	43.33056	(99010201)	AT	(546903.94, 4882117.50)	DC
119.	44.11460	(98091907)	AT	(546907.75, 4882121.50)	DC	159.	43.27261	(99091804)	AT	(546903.94, 4882117.50)	DC
120.	44.11304	(00090904)	AT	(546907.75, 4882121.50)	DC	160.	43.27260	(97101304)	AT	(546903.94, 4882117.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
161.	43.27259	(96100501)	AT	(546903.94, 4882117.50)	DC	201.	42.61904	(97092707)	AT	(546898.50, 4882118.50)	DC
162.	43.27259	(97101824)	AT	(546903.94, 4882117.50)	DC	202.	42.60321	(97013103)	AT	(546889.19, 4882115.00)	DC
163.	43.27258	(00102303)	AT	(546903.94, 4882117.50)	DC	203.	42.58754	(98041902)	AT	(546907.75, 4882121.50)	DC
164.	43.27100	(97121204)	AT	(546898.50, 4882118.50)	DC	204.	42.58144	(99103006)	AT	(546903.94, 4882117.50)	DC
165.	43.25840	(96092107)	AT	(546903.94, 4882117.50)	DC	205.	42.45508	(00012909)	AT	(546907.75, 4882121.50)	DC
166.	43.23024	(00110303)	AT	(546903.94, 4882117.50)	DC	206.	42.44192	(96100423)	AT	(546889.19, 4882115.00)	DC
167.	43.20811	(98042106)	AT	(546907.75, 4882121.50)	DC	207.	42.44191	(00102307)	AT	(546889.19, 4882115.00)	DC
168.	43.18142	(99090322)	AT	(546903.94, 4882117.50)	DC	208.	42.42193	(96090907)	AT	(546903.94, 4882117.50)	DC
169.	43.18141	(96090905)	AT	(546903.94, 4882117.50)	DC	209.	42.40989	(00090604)	AT	(546907.75, 4882121.50)	DC
170.	43.14982	(98111801)	AT	(546898.50, 4882118.50)	DC	210.	42.40239	(96101105)	AT	(546903.94, 4882117.50)	DC
171.	43.12458	(96053103)	AT	(546903.94, 4882117.50)	DC	211.	42.40221	(96122702)	AT	(546903.94, 4882117.50)	DC
172.	43.06944	(00010208)	AT	(546889.19, 4882115.00)	DC	212.	42.32454	(96092320)	AT	(546889.19, 4882115.00)	DC
173.	43.04441	(96091304)	AT	(546903.94, 4882117.50)	DC	213.	42.29419	(99050324)	AT	(546903.94, 4882117.50)	DC
174.	43.03439	(00053006)	AT	(546898.50, 4882118.50)	DC	214.	42.26588	(97111519)	AT	(546903.94, 4882117.50)	DC
175.	43.02082	(96122619)	AT	(546903.94, 4882117.50)	DC	215.	42.25243	(97100904)	AT	(546907.75, 4882121.50)	DC
176.	43.01886	(96042802)	AT	(546903.94, 4882117.50)	DC	216.	42.24380	(98112504)	AT	(546898.50, 4882118.50)	DC
177.	43.01638	(98091902)	AT	(546898.50, 4882118.50)	DC	217.	42.23148	(97100623)	AT	(546889.19, 4882115.00)	DC
178.	42.98926	(98090502)	AT	(546907.75, 4882121.50)	DC	218.	42.23037	(99050301)	AT	(546898.50, 4882118.50)	DC
179.	42.98925	(00092904)	AT	(546907.75, 4882121.50)	DC	219.	42.20988	(99021409)	AT	(546907.75, 4882121.50)	DC
180.	42.95694	(96020309)	AT	(546903.94, 4882117.50)	DC	220.	42.18799	(98010515)	AT	(546903.94, 4882117.50)	DC
181.	42.95176	(98051406)	AT	(546907.75, 4882121.50)	DC	221.	42.13953	(99051504)	AT	(546907.75, 4882121.50)	DC
182.	42.91616	(96092106)	AT	(546907.75, 4882121.50)	DC	222.	42.10175	(97040202)	AT	(546907.75, 4882121.50)	DC
183.	42.85889	(96022521)	AT	(546907.75, 4882121.50)	DC	223.	42.09217	(96042804)	AT	(546903.94, 4882117.50)	DC
184.	42.84073	(96042722)	AT	(546898.50, 4882118.50)	DC	224.	42.08123	(96100502)	AT	(546903.94, 4882117.50)	DC
185.	42.83725	(98102706)	AT	(546903.94, 4882117.50)	DC	225.	42.06580	(98121410)	AT	(546903.94, 4882117.50)	DC
186.	42.83725	(99103005)	AT	(546903.94, 4882117.50)	DC	226.	42.06527	(97122810)	AT	(546907.75, 4882121.50)	DC
187.	42.80499	(97101302)	AT	(546907.75, 4882121.50)	DC	227.	42.03298	(00012924)	AT	(546889.19, 4882115.00)	DC
188.	42.80498	(00110201)	AT	(546907.75, 4882121.50)	DC	228.	41.99184	(96091023)	AT	(546903.94, 4882117.50)	DC
189.	42.75882	(97101303)	AT	(546898.50, 4882118.50)	DC	229.	41.95153	(99051123)	AT	(546898.50, 4882118.50)	DC
190.	42.75881	(98091704)	AT	(546898.50, 4882118.50)	DC	230.	41.92535	(99042102)	AT	(546907.75, 4882121.50)	DC
191.	42.75880	(00092901)	AT	(546898.50, 4882118.50)	DC	231.	41.84747	(96031206)	AT	(546907.75, 4882121.50)	DC
192.	42.73757	(96111001)	AT	(546907.75, 4882121.50)	DC	232.	41.83477	(99012706)	AT	(546889.19, 4882115.00)	DC
193.	42.73277	(96092406)	AT	(546903.94, 4882117.50)	DC	233.	41.81126	(96050404)	AT	(546907.75, 4882121.50)	DC
194.	42.71403	(97090824)	AT	(546903.94, 4882117.50)	DC	234.	41.76289	(98091804)	AT	(546903.94, 4882117.50)	DC
195.	42.68943	(99090403)	AT	(546898.50, 4882118.50)	DC	235.	41.75966	(97092402)	AT	(546889.19, 4882115.00)	DC
196.	42.66781	(99090102)	AT	(546889.19, 4882115.00)	DC	236.	41.75965	(00110205)	AT	(546889.19, 4882115.00)	DC
197.	42.65762	(00102604)	AT	(546903.94, 4882117.50)	DC	237.	41.71981	(96021619)	AT	(546898.50, 4882118.50)	DC
198.	42.64742	(98090402)	AT	(546907.75, 4882121.50)	DC	238.	41.68855	(97012106)	AT	(546898.50, 4882118.50)	DC
199.	42.62464	(99091124)	AT	(546903.94, 4882117.50)	DC	239.	41.67826	(97090101)	AT	(546903.94, 4882117.50)	DC
200.	42.62461	(00090605)	AT	(546903.94, 4882117.50)	DC	240.	41.67825	(98100803)	AT	(546903.94, 4882117.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
241.	41.66533	(98091901)	AT	(546889.19, 4882115.00)	DC	281.	40.63881	(00030804)	AT	(546889.19, 4882115.00)	DC
242.	41.63116	(97051705)	AT	(546907.75, 4882121.50)	DC	282.	40.58266	(96051901)	AT	(546907.75, 4882121.50)	DC
243.	41.62337	(97052802)	AT	(546889.19, 4882115.00)	DC	283.	40.58263	(96053123)	AT	(546907.75, 4882121.50)	DC
244.	41.57969	(96050804)	AT	(546903.94, 4882117.50)	DC	284.	40.57136	(97053104)	AT	(546903.94, 4882117.50)	DC
245.	41.56015	(96011110)	AT	(546889.19, 4882115.00)	DC	285.	40.56274	(00041304)	AT	(546889.19, 4882115.00)	DC
246.	41.51744	(99050223)	AT	(546889.19, 4882115.00)	DC	286.	40.55002	(00110304)	AT	(546898.50, 4882118.50)	DC
247.	41.51743	(96052224)	AT	(546889.19, 4882115.00)	DC	287.	40.53540	(96092321)	AT	(546889.19, 4882115.00)	DC
248.	41.51743	(96053124)	AT	(546889.19, 4882115.00)	DC	288.	40.52403	(97120223)	AT	(546907.75, 4882121.50)	DC
249.	41.48762	(97102404)	AT	(546898.50, 4882118.50)	DC	289.	40.51176	(98021606)	AT	(546889.19, 4882115.00)	DC
250.	41.47927	(98050601)	AT	(546903.94, 4882117.50)	DC	290.	40.50514	(98021107)	AT	(546907.75, 4882121.50)	DC
251.	41.47617	(97013104)	AT	(546889.19, 4882115.00)	DC	291.	40.49707	(98091704)	AT	(546903.94, 4882117.50)	DC
252.	41.46736	(98090105)	AT	(546907.75, 4882121.50)	DC	292.	40.49706	(97101303)	AT	(546903.94, 4882117.50)	DC
253.	41.46078	(99010808)	AT	(546898.50, 4882118.50)	DC	293.	40.49705	(00092901)	AT	(546903.94, 4882117.50)	DC
254.	41.31695	(98091624)	AT	(546903.94, 4882117.50)	DC	294.	40.47365	(00012906)	AT	(546917.12, 4882124.50)	DC
255.	41.30315	(97032723)	AT	(546889.19, 4882115.00)	DC	295.	40.41021	(99090403)	AT	(546903.94, 4882117.50)	DC
256.	41.30313	(00030802)	AT	(546889.19, 4882115.00)	DC	296.	40.40441	(96052302)	AT	(546898.50, 4882118.50)	DC
257.	41.29657	(97111118)	AT	(546903.94, 4882117.50)	DC	297.	40.32351	(97092707)	AT	(546903.94, 4882117.50)	DC
258.	41.28773	(96041423)	AT	(546889.19, 4882115.00)	DC	298.	40.32230	(96011219)	AT	(546917.12, 4882124.50)	DC
259.	41.23344	(97121204)	AT	(546903.94, 4882117.50)	DC	299.	40.31546	(98022804)	AT	(546879.81, 4882112.00)	DC
260.	41.23028	(96090423)	AT	(546903.94, 4882117.50)	DC	300.	40.30975	(98110604)	AT	(546903.94, 4882117.50)	DC
261.	41.22247	(97052505)	AT	(546903.94, 4882117.50)	DC	301.	40.30320	(98042924)	AT	(546903.94, 4882117.50)	DC
262.	41.19041	(00092903)	AT	(546907.75, 4882121.50)	DC	302.	40.29222	(96020309)	AT	(546907.75, 4882121.50)	DC
263.	41.17949	(96102201)	AT	(546889.19, 4882115.00)	DC	303.	40.25769	(99012520)	AT	(546889.19, 4882115.00)	DC
264.	41.15730	(97101202)	AT	(546898.50, 4882118.50)	DC	304.	40.25027	(98050104)	AT	(546889.19, 4882115.00)	DC
265.	41.02643	(97102808)	AT	(546907.75, 4882121.50)	DC	305.	40.24001	(99050102)	AT	(546898.50, 4882118.50)	DC
266.	41.01832	(96122619)	AT	(546898.50, 4882118.50)	DC	306.	40.23737	(99040323)	AT	(546903.94, 4882117.50)	DC
267.	40.97158	(97100903)	AT	(546903.94, 4882117.50)	DC	307.	40.22804	(00053003)	AT	(546889.19, 4882115.00)	DC
268.	40.96665	(96052303)	AT	(546903.94, 4882117.50)	DC	308.	40.21692	(98120502)	AT	(546907.75, 4882121.50)	DC
269.	40.96663	(99042706)	AT	(546903.94, 4882117.50)	DC	309.	40.16299	(00050406)	AT	(546907.75, 4882121.50)	DC
270.	40.96663	(97041501)	AT	(546903.94, 4882117.50)	DC	310.	40.15814	(98052606)	AT	(546903.94, 4882117.50)	DC
271.	40.94836	(00012909)	AT	(546903.94, 4882117.50)	DC	311.	40.15310	(97090102)	AT	(546903.94, 4882117.50)	DC
272.	40.86595	(99053104)	AT	(546903.94, 4882117.50)	DC	312.	40.11326	(97111118)	AT	(546898.50, 4882118.50)	DC
273.	40.80287	(98090324)	AT	(546907.75, 4882121.50)	DC	313.	40.08088	(96011105)	AT	(546903.94, 4882117.50)	DC
274.	40.73776	(96100502)	AT	(546898.50, 4882118.50)	DC	314.	40.03910	(96062702)	AT	(546898.50, 4882118.50)	DC
275.	40.72050	(00103106)	AT	(546889.19, 4882115.00)	DC	315.	40.03909	(97060404)	AT	(546898.50, 4882118.50)	DC
276.	40.70749	(99090506)	AT	(546889.19, 4882115.00)	DC	316.	40.03305	(96052303)	AT	(546898.50, 4882118.50)	DC
277.	40.69606	(97102408)	AT	(546907.75, 4882121.50)	DC	317.	40.03304	(99042706)	AT	(546898.50, 4882118.50)	DC
278.	40.67071	(96091023)	AT	(546898.50, 4882118.50)	DC	318.	40.03303	(97041501)	AT	(546898.50, 4882118.50)	DC
279.	40.66799	(97040205)	AT	(546907.75, 4882121.50)	DC	319.	39.99601	(99012111)	AT	(546889.19, 4882115.00)	DC
280.	40.65769	(99021409)	AT	(546903.94, 4882117.50)	DC	320.	39.98731	(98022802)	AT	(546889.19, 4882115.00)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
321.	39.97417	(99010809)	AT	(546889.19, 4882115.00)	DC	361.	39.19503	(99012906)	AT	(546917.12, 4882124.50)	DC
322.	39.95789	(98020923)	AT	(546889.19, 4882115.00)	DC	362.	39.19081	(96120906)	AT	(546898.50, 4882118.50)	DC
323.	39.95060	(99053104)	AT	(546898.50, 4882118.50)	DC	363.	39.17562	(96090423)	AT	(546907.75, 4882121.50)	DC
324.	39.93992	(96071724)	AT	(546898.50, 4882118.50)	DC	364.	39.16864	(96041324)	AT	(546907.75, 4882121.50)	DC
325.	39.90042	(97010902)	AT	(546879.81, 4882112.00)	DC	365.	39.15372	(98090324)	AT	(546903.94, 4882117.50)	DC
326.	39.89640	(00062605)	AT	(546898.50, 4882118.50)	DC	366.	39.13981	(00102308)	AT	(546889.19, 4882115.00)	DC
327.	39.89639	(96071204)	AT	(546898.50, 4882118.50)	DC	367.	39.13773	(99020703)	AT	(546917.12, 4882124.50)	DC
328.	39.88436	(00120906)	AT	(546903.94, 4882117.50)	DC	368.	39.13401	(98121609)	AT	(546903.94, 4882117.50)	DC
329.	39.86366	(96121103)	AT	(546907.75, 4882121.50)	DC	369.	39.12628	(98070601)	AT	(546898.50, 4882118.50)	DC
330.	39.86365	(97121203)	AT	(546907.75, 4882121.50)	DC	370.	39.12083	(96122904)	AT	(546917.12, 4882124.50)	DC
331.	39.79921	(96082106)	AT	(546898.50, 4882118.50)	DC	371.	39.08979	(96051906)	AT	(546898.50, 4882118.50)	DC
332.	39.78041	(00082505)	AT	(546898.50, 4882118.50)	DC	372.	39.07961	(00021209)	AT	(546879.81, 4882112.00)	DC
333.	39.75406	(97122805)	AT	(546917.12, 4882124.50)	DC	373.	39.05481	(98022622)	AT	(546879.81, 4882112.00)	DC
334.	39.70457	(97053104)	AT	(546898.50, 4882118.50)	DC	374.	39.03183	(97102404)	AT	(546903.94, 4882117.50)	DC
335.	39.70353	(97101806)	AT	(546907.75, 4882121.50)	DC	375.	38.96349	(98091702)	AT	(546898.50, 4882118.50)	DC
336.	39.67127	(96011220)	AT	(546917.12, 4882124.50)	DC	376.	38.94834	(97100903)	AT	(546907.75, 4882121.50)	DC
337.	39.66257	(00090107)	AT	(546907.75, 4882121.50)	DC	377.	38.94360	(96050624)	AT	(546907.75, 4882121.50)	DC
338.	39.65241	(98081304)	AT	(546898.50, 4882118.50)	DC	378.	38.94000	(97111517)	AT	(546889.19, 4882115.00)	DC
339.	39.63766	(98092901)	AT	(546907.75, 4882121.50)	DC	379.	38.92989	(99121122)	AT	(546917.12, 4882124.50)	DC
340.	39.58445	(96050323)	AT	(546889.19, 4882115.00)	DC	380.	38.91134	(96071801)	AT	(546898.50, 4882118.50)	DC
341.	39.57058	(98091924)	AT	(546907.75, 4882121.50)	DC	381.	38.91134	(98070524)	AT	(546898.50, 4882118.50)	DC
342.	39.56930	(00092903)	AT	(546903.94, 4882117.50)	DC	382.	38.91134	(00083105)	AT	(546898.50, 4882118.50)	DC
343.	39.55370	(96082824)	AT	(546898.50, 4882118.50)	DC	383.	38.90806	(00090603)	AT	(546889.19, 4882115.00)	DC
344.	39.53042	(98121410)	AT	(546907.75, 4882121.50)	DC	384.	38.88507	(98022009)	AT	(546917.12, 4882124.50)	DC
345.	39.51558	(97020201)	AT	(546917.12, 4882124.50)	DC	385.	38.86335	(96021308)	AT	(546917.12, 4882124.50)	DC
346.	39.49045	(96081906)	AT	(546898.50, 4882118.50)	DC	386.	38.79186	(98111724)	AT	(546917.12, 4882124.50)	DC
347.	39.48613	(96091306)	AT	(546889.19, 4882115.00)	DC	387.	38.69378	(98090506)	AT	(546917.12, 4882124.50)	DC
348.	39.48392	(99050224)	AT	(546889.19, 4882115.00)	DC	388.	38.68847	(98091807)	AT	(546889.19, 4882115.00)	DC
349.	39.47474	(99051123)	AT	(546903.94, 4882117.50)	DC	389.	38.63215	(97122806)	AT	(546917.12, 4882124.50)	DC
350.	39.44282	(98010621)	AT	(546917.12, 4882124.50)	DC	390.	38.51736	(96010703)	AT	(546898.50, 4882118.50)	DC
351.	39.34341	(98101201)	AT	(546889.19, 4882115.00)	DC	391.	38.51266	(96081202)	AT	(546898.50, 4882118.50)	DC
352.	39.34340	(97101207)	AT	(546889.19, 4882115.00)	DC	392.	38.49553	(98091301)	AT	(546889.19, 4882115.00)	DC
353.	39.34340	(97101901)	AT	(546889.19, 4882115.00)	DC	393.	38.49418	(96092522)	AT	(546917.12, 4882124.50)	DC
354.	39.34340	(00103107)	AT	(546889.19, 4882115.00)	DC	394.	38.49166	(99120907)	AT	(546917.12, 4882124.50)	DC
355.	39.28284	(00012303)	AT	(546898.50, 4882118.50)	DC	395.	38.48064	(99072203)	AT	(546898.50, 4882118.50)	DC
356.	39.25194	(96090904)	AT	(546889.19, 4882115.00)	DC	396.	38.43689	(99091804)	AT	(546898.50, 4882118.50)	DC
357.	39.25193	(98092004)	AT	(546889.19, 4882115.00)	DC	397.	38.43687	(97101304)	AT	(546898.50, 4882118.50)	DC
358.	39.25054	(98091624)	AT	(546907.75, 4882121.50)	DC	398.	38.43687	(96100501)	AT	(546898.50, 4882118.50)	DC
359.	39.20656	(00092905)	AT	(546889.19, 4882115.00)	DC	399.	38.43687	(97101824)	AT	(546898.50, 4882118.50)	DC
360.	39.19992	(96121417)	AT	(546917.12, 4882124.50)	DC	400.	38.43687	(00102303)	AT	(546898.50, 4882118.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
401.	38.40864	(98030606)	AT	(546889.19, 4882115.00)	DC	441.	37.86231	(98102704)	AT	(546879.81, 4882112.00)	DC
402.	38.40829	(99121903)	AT	(546879.81, 4882112.00)	DC	442.	37.84904	(00010516)	AT	(546889.19, 4882115.00)	DC
403.	38.40458	(00092207)	AT	(546917.12, 4882124.50)	DC	443.	37.84469	(96042804)	AT	(546898.50, 4882118.50)	DC
404.	38.40248	(98041301)	AT	(546898.50, 4882118.50)	DC	444.	37.84185	(98122105)	AT	(546903.94, 4882117.50)	DC
405.	38.37832	(98101602)	AT	(546898.50, 4882118.50)	DC	445.	37.83848	(96052802)	AT	(546889.19, 4882115.00)	DC
406.	38.37585	(96122615)	AT	(546917.12, 4882124.50)	DC	446.	37.80108	(96050904)	AT	(546889.19, 4882115.00)	DC
407.	38.37268	(99090322)	AT	(546898.50, 4882118.50)	DC	447.	37.78150	(99050102)	AT	(546903.94, 4882117.50)	DC
408.	38.37267	(96090905)	AT	(546898.50, 4882118.50)	DC	448.	37.74610	(96111623)	AT	(546889.19, 4882115.00)	DC
409.	38.35345	(98091904)	AT	(546917.12, 4882124.50)	DC	449.	37.71892	(98101705)	AT	(546889.19, 4882115.00)	DC
410.	38.35344	(96092103)	AT	(546917.12, 4882124.50)	DC	450.	37.71024	(98072504)	AT	(546898.50, 4882118.50)	DC
411.	38.34809	(98110604)	AT	(546907.75, 4882121.50)	DC	451.	37.70279	(96122909)	AT	(546889.19, 4882115.00)	DC
412.	38.33325	(98092403)	AT	(546917.12, 4882124.50)	DC	452.	37.69374	(97022808)	AT	(546889.19, 4882115.00)	DC
413.	38.33046	(00042322)	AT	(546889.19, 4882115.00)	DC	453.	37.67279	(98100502)	AT	(546917.12, 4882124.50)	DC
414.	38.33045	(97032801)	AT	(546889.19, 4882115.00)	DC	454.	37.67278	(97092701)	AT	(546917.12, 4882124.50)	DC
415.	38.33044	(00030805)	AT	(546889.19, 4882115.00)	DC	455.	37.67278	(96100503)	AT	(546917.12, 4882124.50)	DC
416.	38.32496	(98050604)	AT	(546898.50, 4882118.50)	DC	456.	37.65705	(97090901)	AT	(546889.19, 4882115.00)	DC
417.	38.31975	(98021008)	AT	(546917.12, 4882124.50)	DC	457.	37.65472	(00102003)	AT	(546917.12, 4882124.50)	DC
418.	38.30034	(99051506)	AT	(546889.19, 4882115.00)	DC	458.	37.63311	(98091305)	AT	(546889.19, 4882115.00)	DC
419.	38.28515	(00010124)	AT	(546889.19, 4882115.00)	DC	459.	37.63309	(00102306)	AT	(546889.19, 4882115.00)	DC
420.	38.22484	(96111504)	AT	(546879.81, 4882112.00)	DC	460.	37.61431	(00112504)	AT	(546907.75, 4882121.50)	DC
421.	38.22163	(00010123)	AT	(546889.19, 4882115.00)	DC	461.	37.60365	(98091804)	AT	(546898.50, 4882118.50)	DC
422.	38.21356	(97101223)	AT	(546879.81, 4882112.00)	DC	462.	37.56943	(99021408)	AT	(546903.94, 4882117.50)	DC
423.	38.20295	(97090102)	AT	(546907.75, 4882121.50)	DC	463.	37.55384	(99020707)	AT	(546907.75, 4882121.50)	DC
424.	38.19272	(97071303)	AT	(546907.75, 4882121.50)	DC	464.	37.55217	(97092622)	AT	(546907.75, 4882121.50)	DC
425.	38.12508	(00021303)	AT	(546889.19, 4882115.00)	DC	465.	37.55217	(96100322)	AT	(546907.75, 4882121.50)	DC
426.	38.10404	(97061002)	AT	(546898.50, 4882118.50)	DC	466.	37.55217	(99100507)	AT	(546907.75, 4882121.50)	DC
427.	38.05370	(96081904)	AT	(546907.75, 4882121.50)	DC	467.	37.54962	(99090206)	AT	(546889.19, 4882115.00)	DC
428.	38.03315	(99010810)	AT	(546898.50, 4882118.50)	DC	468.	37.54962	(97091402)	AT	(546889.19, 4882115.00)	DC
429.	38.03135	(97032805)	AT	(546889.19, 4882115.00)	DC	469.	37.54958	(98112503)	AT	(546889.19, 4882115.00)	DC
430.	38.01388	(00081801)	AT	(546898.50, 4882118.50)	DC	470.	37.51909	(97101302)	AT	(546903.94, 4882117.50)	DC
431.	37.98644	(99062603)	AT	(546898.50, 4882118.50)	DC	471.	37.51909	(00110201)	AT	(546903.94, 4882117.50)	DC
432.	37.98621	(96022623)	AT	(546879.81, 4882112.00)	DC	472.	37.51666	(97061803)	AT	(546898.50, 4882118.50)	DC
433.	37.97765	(00112508)	AT	(546879.81, 4882112.00)	DC	473.	37.43736	(96083023)	AT	(546907.75, 4882121.50)	DC
434.	37.96523	(99021402)	AT	(546907.75, 4882121.50)	DC	474.	37.43736	(97071101)	AT	(546907.75, 4882121.50)	DC
435.	37.95602	(96071723)	AT	(546907.75, 4882121.50)	DC	475.	37.40361	(00103101)	AT	(546879.81, 4882112.00)	DC
436.	37.95602	(97080901)	AT	(546907.75, 4882121.50)	DC	476.	37.38223	(98091403)	AT	(546889.19, 4882115.00)	DC
437.	37.95602	(00081401)	AT	(546907.75, 4882121.50)	DC	477.	37.35994	(98090402)	AT	(546903.94, 4882117.50)	DC
438.	37.93428	(99051501)	AT	(546889.19, 4882115.00)	DC	478.	37.35371	(97020303)	AT	(546917.12, 4882124.50)	DC
439.	37.91359	(99012519)	AT	(546879.81, 4882112.00)	DC	479.	37.35368	(99011217)	AT	(546917.12, 4882124.50)	DC
440.	37.89624	(96060103)	AT	(546907.75, 4882121.50)	DC	480.	37.34870	(97020122)	AT	(546917.12, 4882124.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
481.	37.28464	(00082204)	AT	(546898.50, 4882118.50)	DC	521.	36.65854	(98083105)	AT	(546903.94, 4882117.50)	DC
482.	37.27319	(98070402)	AT	(546898.50, 4882118.50)	DC	522.	36.65854	(99061903)	AT	(546903.94, 4882117.50)	DC
483.	37.22906	(98011801)	AT	(546879.81, 4882112.00)	DC	523.	36.65853	(99061904)	AT	(546903.94, 4882117.50)	DC
484.	37.20274	(98090303)	AT	(546917.12, 4882124.50)	DC	524.	36.61655	(98101704)	AT	(546879.81, 4882112.00)	DC
485.	37.16729	(97090101)	AT	(546898.50, 4882118.50)	DC	525.	36.61425	(96022701)	AT	(546917.12, 4882124.50)	DC
486.	37.16728	(98100803)	AT	(546898.50, 4882118.50)	DC	526.	36.61142	(97042904)	AT	(546917.12, 4882124.50)	DC
487.	37.15899	(97100205)	AT	(546907.75, 4882121.50)	DC	527.	36.61140	(96042803)	AT	(546917.12, 4882124.50)	DC
488.	37.13534	(96052305)	AT	(546917.12, 4882124.50)	DC	528.	36.61140	(00030401)	AT	(546917.12, 4882124.50)	DC
489.	37.13513	(97121205)	AT	(546907.75, 4882121.50)	DC	529.	36.60622	(00120903)	AT	(546889.19, 4882115.00)	DC
490.	37.12166	(00090604)	AT	(546903.94, 4882117.50)	DC	530.	36.59319	(99012908)	AT	(546903.94, 4882117.50)	DC
491.	37.03490	(96120505)	AT	(546879.81, 4882112.00)	DC	531.	36.59178	(97071205)	AT	(546903.94, 4882117.50)	DC
492.	37.03325	(97090824)	AT	(546907.75, 4882121.50)	DC	532.	36.58648	(98092005)	AT	(546917.12, 4882124.50)	DC
493.	37.00700	(00053005)	AT	(546917.12, 4882124.50)	DC	533.	36.56959	(96091106)	AT	(546917.12, 4882124.50)	DC
494.	36.98421	(97070204)	AT	(546907.75, 4882121.50)	DC	534.	36.56676	(96122702)	AT	(546907.75, 4882121.50)	DC
495.	36.96455	(97100904)	AT	(546903.94, 4882117.50)	DC	535.	36.56273	(97041402)	AT	(546917.12, 4882124.50)	DC
496.	36.96115	(99091124)	AT	(546907.75, 4882121.50)	DC	536.	36.55896	(97080824)	AT	(546903.94, 4882117.50)	DC
497.	36.96113	(00090605)	AT	(546907.75, 4882121.50)	DC	537.	36.55894	(96072902)	AT	(546903.94, 4882117.50)	DC
498.	36.94940	(98031702)	AT	(546889.19, 4882115.00)	DC	538.	36.54267	(96040824)	AT	(546879.81, 4882112.00)	DC
499.	36.91617	(98062305)	AT	(546898.50, 4882118.50)	DC	539.	36.52964	(96022102)	AT	(546903.94, 4882117.50)	DC
500.	36.89805	(98012111)	AT	(546898.50, 4882118.50)	DC	540.	36.52963	(96022105)	AT	(546903.94, 4882117.50)	DC
501.	36.88820	(99062202)	AT	(546898.50, 4882118.50)	DC	541.	36.49248	(96082105)	AT	(546903.94, 4882117.50)	DC
502.	36.86101	(99063005)	AT	(546907.75, 4882121.50)	DC	542.	36.49192	(96090424)	AT	(546898.50, 4882118.50)	DC
503.	36.85425	(97052801)	AT	(546889.19, 4882115.00)	DC	543.	36.49191	(96092523)	AT	(546898.50, 4882118.50)	DC
504.	36.85423	(96031805)	AT	(546889.19, 4882115.00)	DC	544.	36.49073	(00100922)	AT	(546879.81, 4882112.00)	DC
505.	36.85055	(97120304)	AT	(546898.50, 4882118.50)	DC	545.	36.48883	(96091305)	AT	(546889.19, 4882115.00)	DC
506.	36.85055	(97122106)	AT	(546898.50, 4882118.50)	DC	546.	36.47442	(97100906)	AT	(546917.12, 4882124.50)	DC
507.	36.80700	(97101022)	AT	(546917.12, 4882124.50)	DC	547.	36.47272	(98120503)	AT	(546898.50, 4882118.50)	DC
508.	36.80262	(97100804)	AT	(546879.81, 4882112.00)	DC	548.	36.47271	(98021103)	AT	(546898.50, 4882118.50)	DC
509.	36.79454	(97082802)	AT	(546898.50, 4882118.50)	DC	549.	36.43538	(00021207)	AT	(546879.81, 4882112.00)	DC
510.	36.79118	(99050305)	AT	(546879.81, 4882112.00)	DC	550.	36.42952	(96111002)	AT	(546907.75, 4882121.50)	DC
511.	36.76250	(98111805)	AT	(546917.12, 4882124.50)	DC	551.	36.42939	(96051906)	AT	(546903.94, 4882117.50)	DC
512.	36.74588	(96081803)	AT	(546907.75, 4882121.50)	DC	552.	36.42823	(98072503)	AT	(546903.94, 4882117.50)	DC
513.	36.74588	(99061902)	AT	(546907.75, 4882121.50)	DC	553.	36.42823	(98082706)	AT	(546903.94, 4882117.50)	DC
514.	36.73944	(99012517)	AT	(546917.12, 4882124.50)	DC	554.	36.41038	(99052006)	AT	(546917.12, 4882124.50)	DC
515.	36.73602	(99072202)	AT	(546907.75, 4882121.50)	DC	555.	36.39145	(99010811)	AT	(546889.19, 4882115.00)	DC
516.	36.72699	(98021602)	AT	(546889.19, 4882115.00)	DC	556.	36.36896	(96082206)	AT	(546907.75, 4882121.50)	DC
517.	36.72036	(97122110)	AT	(546903.94, 4882117.50)	DC	557.	36.36895	(00080402)	AT	(546907.75, 4882121.50)	DC
518.	36.69910	(96031206)	AT	(546903.94, 4882117.50)	DC	558.	36.36616	(97090905)	AT	(546903.94, 4882117.50)	DC
519.	36.67522	(99110705)	AT	(546917.12, 4882124.50)	DC	559.	36.36616	(97101902)	AT	(546903.94, 4882117.50)	DC
520.	36.66564	(98112505)	AT	(546917.12, 4882124.50)	DC	560.	36.36615	(96100424)	AT	(546903.94, 4882117.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
561.	36.36615	(97101905)	AT	(546903.94, 4882117.50)	DC	601.	35.70301	(98112823)	AT	(546889.19, 4882115.00)	DC
562.	36.35786	(96050804)	AT	(546907.75, 4882121.50)	DC	602.	35.69182	(97072206)	AT	(546903.94, 4882117.50)	DC
563.	36.35446	(98042924)	AT	(546898.50, 4882118.50)	DC	603.	35.67114	(97060505)	AT	(546889.19, 4882115.00)	DC
564.	36.33014	(98080501)	AT	(546907.75, 4882121.50)	DC	604.	35.66792	(98072606)	AT	(546903.94, 4882117.50)	DC
565.	36.32901	(96080302)	AT	(546903.94, 4882117.50)	DC	605.	35.62162	(97021708)	AT	(546907.75, 4882121.50)	DC
566.	36.32535	(96031502)	AT	(546917.12, 4882124.50)	DC	606.	35.61717	(96092524)	AT	(546889.19, 4882115.00)	DC
567.	36.31047	(99120106)	AT	(546898.50, 4882118.50)	DC	607.	35.58351	(00051104)	AT	(546907.75, 4882121.50)	DC
568.	36.27360	(98050601)	AT	(546907.75, 4882121.50)	DC	608.	35.57846	(97032724)	AT	(546903.94, 4882117.50)	DC
569.	36.27350	(96083123)	AT	(546907.75, 4882121.50)	DC	609.	35.57846	(97041424)	AT	(546903.94, 4882117.50)	DC
570.	36.23679	(96041903)	AT	(546879.81, 4882112.00)	DC	610.	35.57331	(97060322)	AT	(546903.94, 4882117.50)	DC
571.	36.22738	(97083004)	AT	(546903.94, 4882117.50)	DC	611.	35.57330	(97082402)	AT	(546903.94, 4882117.50)	DC
572.	36.22735	(97060403)	AT	(546903.94, 4882117.50)	DC	612.	35.57050	(97080906)	AT	(546889.19, 4882115.00)	DC
573.	36.20589	(96101703)	AT	(546903.94, 4882117.50)	DC	613.	35.57048	(97082002)	AT	(546889.19, 4882115.00)	DC
574.	36.16528	(98110802)	AT	(546889.19, 4882115.00)	DC	614.	35.54785	(97041304)	AT	(546917.12, 4882124.50)	DC
575.	36.13703	(96071205)	AT	(546903.94, 4882117.50)	DC	615.	35.49589	(99052104)	AT	(546917.12, 4882124.50)	DC
576.	36.12899	(97071304)	AT	(546903.94, 4882117.50)	DC	616.	35.48983	(97062706)	AT	(546907.75, 4882121.50)	DC
577.	36.11800	(99121201)	AT	(546917.12, 4882124.50)	DC	617.	35.47632	(97080903)	AT	(546903.94, 4882117.50)	DC
578.	36.11054	(99030824)	AT	(546898.50, 4882118.50)	DC	618.	35.47632	(96080502)	AT	(546903.94, 4882117.50)	DC
579.	36.05922	(97120501)	AT	(546917.12, 4882124.50)	DC	619.	35.45836	(00060623)	AT	(546898.50, 4882118.50)	DC
580.	36.05701	(97042024)	AT	(546917.12, 4882124.50)	DC	620.	35.42879	(97102408)	AT	(546903.94, 4882117.50)	DC
581.	36.02768	(97100704)	AT	(546879.81, 4882112.00)	DC	621.	35.42407	(96092004)	AT	(546917.12, 4882124.50)	DC
582.	35.97522	(98121810)	AT	(546898.50, 4882118.50)	DC	622.	35.42407	(99091205)	AT	(546917.12, 4882124.50)	DC
583.	35.94903	(98081301)	AT	(546898.50, 4882118.50)	DC	623.	35.41376	(98073004)	AT	(546903.94, 4882117.50)	DC
584.	35.91818	(96050801)	AT	(546907.75, 4882121.50)	DC	624.	35.41154	(00090906)	AT	(546879.81, 4882112.00)	DC
585.	35.91571	(98091701)	AT	(546898.50, 4882118.50)	DC	625.	35.39874	(99051602)	AT	(546903.94, 4882117.50)	DC
586.	35.91283	(00012003)	AT	(546917.12, 4882124.50)	DC	626.	35.38054	(97112908)	AT	(546879.81, 4882112.00)	DC
587.	35.91282	(97121202)	AT	(546917.12, 4882124.50)	DC	627.	35.37831	(00122102)	AT	(546879.81, 4882112.00)	DC
588.	35.90485	(98010701)	AT	(546889.19, 4882115.00)	DC	628.	35.36739	(97080904)	AT	(546898.50, 4882118.50)	DC
589.	35.89825	(97120905)	AT	(546879.81, 4882112.00)	DC	629.	35.36739	(98082803)	AT	(546898.50, 4882118.50)	DC
590.	35.85779	(96070124)	AT	(546898.50, 4882118.50)	DC	630.	35.34336	(96011516)	AT	(546917.12, 4882124.50)	DC
591.	35.84174	(98080505)	AT	(546898.50, 4882118.50)	DC	631.	35.32520	(96100405)	AT	(546907.75, 4882121.50)	DC
592.	35.81037	(96121618)	AT	(546879.81, 4882112.00)	DC	632.	35.29712	(98082106)	AT	(546907.75, 4882121.50)	DC
593.	35.80052	(97071602)	AT	(546903.94, 4882117.50)	DC	633.	35.28729	(96080506)	AT	(546889.19, 4882115.00)	DC
594.	35.80052	(97071603)	AT	(546903.94, 4882117.50)	DC	634.	35.26704	(00092823)	AT	(546907.75, 4882121.50)	DC
595.	35.78875	(96022103)	AT	(546917.12, 4882124.50)	DC	635.	35.25832	(98092002)	AT	(546917.12, 4882124.50)	DC
596.	35.76397	(98093023)	AT	(546889.19, 4882115.00)	DC	636.	35.25305	(96020306)	AT	(546907.75, 4882121.50)	DC
597.	35.73452	(98010515)	AT	(546907.75, 4882121.50)	DC	637.	35.25305	(97020903)	AT	(546907.75, 4882121.50)	DC
598.	35.72680	(96051505)	AT	(546879.81, 4882112.00)	DC	638.	35.22698	(98030605)	AT	(546889.19, 4882115.00)	DC
599.	35.70893	(98071805)	AT	(546907.75, 4882121.50)	DC	639.	35.22672	(97021707)	AT	(546898.50, 4882118.50)	DC
600.	35.70893	(98071204)	AT	(546907.75, 4882121.50)	DC	640.	35.22665	(98020903)	AT	(546907.75, 4882121.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
641.	35.22035	(96092105)	AT	(546903.94, 4882117.50)	DC	681.	34.66351	(96111706)	AT	(546907.75, 4882121.50)	DC
642.	35.22034	(96100504)	AT	(546903.94, 4882117.50)	DC	682.	34.64246	(98080406)	AT	(546907.75, 4882121.50)	DC
643.	35.22034	(97092403)	AT	(546903.94, 4882117.50)	DC	683.	34.63399	(98062303)	AT	(546903.94, 4882117.50)	DC
644.	35.22034	(97092404)	AT	(546903.94, 4882117.50)	DC	684.	34.62227	(98072505)	AT	(546889.19, 4882115.00)	DC
645.	35.20741	(99091123)	AT	(546907.75, 4882121.50)	DC	685.	34.59538	(96110921)	AT	(546907.75, 4882121.50)	DC
646.	35.18797	(99013021)	AT	(546898.50, 4882118.50)	DC	686.	34.53841	(98073005)	AT	(546898.50, 4882118.50)	DC
647.	35.18622	(97111516)	AT	(546889.19, 4882115.00)	DC	687.	34.53840	(98062302)	AT	(546898.50, 4882118.50)	DC
648.	35.14494	(96090501)	AT	(546903.94, 4882117.50)	DC	688.	34.53547	(99010807)	AT	(546903.94, 4882117.50)	DC
649.	35.13231	(99012823)	AT	(546898.50, 4882118.50)	DC	689.	34.52604	(96122703)	AT	(546917.12, 4882124.50)	DC
650.	35.12058	(97071203)	AT	(546907.75, 4882121.50)	DC	690.	34.52392	(96111003)	AT	(546889.19, 4882115.00)	DC
651.	35.11061	(96092606)	AT	(546889.19, 4882115.00)	DC	691.	34.50216	(00102505)	AT	(546879.81, 4882112.00)	DC
652.	35.08803	(00060623)	AT	(546903.94, 4882117.50)	DC	692.	34.45653	(97100707)	AT	(546907.75, 4882121.50)	DC
653.	35.08475	(97092804)	AT	(546907.75, 4882121.50)	DC	693.	34.45008	(97031303)	AT	(546917.12, 4882124.50)	DC
654.	35.07204	(98090107)	AT	(546917.12, 4882124.50)	DC	694.	34.42908	(98020901)	AT	(546898.50, 4882118.50)	DC
655.	35.03761	(98011210)	AT	(546879.81, 4882112.00)	DC	695.	34.40244	(98081303)	AT	(546898.50, 4882118.50)	DC
656.	35.00714	(97120909)	AT	(546889.19, 4882115.00)	DC	696.	34.39954	(98070604)	AT	(546898.50, 4882118.50)	DC
657.	35.00249	(99020808)	AT	(546898.50, 4882118.50)	DC	697.	34.36440	(97020902)	AT	(546898.50, 4882118.50)	DC
658.	34.99333	(98092406)	AT	(546903.94, 4882117.50)	DC	698.	34.35652	(96031503)	AT	(546879.81, 4882112.00)	DC
659.	34.99165	(99050306)	AT	(546889.19, 4882115.00)	DC	699.	34.35015	(96011024)	AT	(546926.44, 4882127.50)	DC
660.	34.99144	(97080904)	AT	(546903.94, 4882117.50)	DC	700.	34.34870	(99010201)	AT	(546907.75, 4882121.50)	DC
661.	34.99144	(98082803)	AT	(546903.94, 4882117.50)	DC	701.	34.33528	(99121304)	AT	(546898.50, 4882118.50)	DC
662.	34.96185	(96031204)	AT	(546889.19, 4882115.00)	DC	702.	34.33250	(00120907)	AT	(546889.19, 4882115.00)	DC
663.	34.93940	(97062603)	AT	(546907.75, 4882121.50)	DC	703.	34.32049	(96020307)	AT	(546926.44, 4882127.50)	DC
664.	34.92732	(96061624)	AT	(546903.94, 4882117.50)	DC	704.	34.31412	(98081702)	AT	(546898.50, 4882118.50)	DC
665.	34.86627	(00042904)	AT	(546889.19, 4882115.00)	DC	705.	34.31289	(99121303)	AT	(546898.50, 4882118.50)	DC
666.	34.85312	(00082503)	AT	(546889.19, 4882115.00)	DC	706.	34.30837	(98020902)	AT	(546898.50, 4882118.50)	DC
667.	34.84005	(98091906)	AT	(546879.81, 4882112.00)	DC	707.	34.30837	(99120104)	AT	(546898.50, 4882118.50)	DC
668.	34.80281	(96042723)	AT	(546907.75, 4882121.50)	DC	708.	34.30086	(99042104)	AT	(546917.12, 4882124.50)	DC
669.	34.78471	(97062604)	AT	(546889.19, 4882115.00)	DC	709.	34.27261	(99112304)	AT	(546889.19, 4882115.00)	DC
670.	34.77752	(99120107)	AT	(546903.94, 4882117.50)	DC	710.	34.25835	(00012906)	AT	(546923.94, 4882117.50)	DC
671.	34.77154	(97060801)	AT	(546903.94, 4882117.50)	DC	711.	34.24467	(96092107)	AT	(546907.75, 4882121.50)	DC
672.	34.75784	(97060103)	AT	(546903.94, 4882117.50)	DC	712.	34.23109	(98062406)	AT	(546903.94, 4882117.50)	DC
673.	34.75540	(97041305)	AT	(546898.50, 4882118.50)	DC	713.	34.22348	(99021019)	AT	(546926.44, 4882127.50)	DC
674.	34.75426	(96080402)	AT	(546889.19, 4882115.00)	DC	714.	34.22346	(97120221)	AT	(546926.44, 4882127.50)	DC
675.	34.72922	(98051405)	AT	(546907.75, 4882121.50)	DC	715.	34.21875	(96062602)	AT	(546898.50, 4882118.50)	DC
676.	34.71186	(96010624)	AT	(546898.50, 4882118.50)	DC	716.	34.20935	(96092403)	AT	(546917.12, 4882124.50)	DC
677.	34.70647	(96120503)	AT	(546898.50, 4882118.50)	DC	717.	34.20498	(96121102)	AT	(546917.12, 4882124.50)	DC
678.	34.70505	(99032604)	AT	(546917.12, 4882124.50)	DC	718.	34.16137	(00022508)	AT	(546879.81, 4882112.00)	DC
679.	34.69038	(97020402)	AT	(546898.50, 4882118.50)	DC	719.	34.15880	(96122704)	AT	(546917.12, 4882124.50)	DC
680.	34.66905	(96092519)	AT	(546898.50, 4882118.50)	DC	720.	34.14845	(00050306)	AT	(546917.12, 4882124.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
721.	34.14563	(99121307)	AT	(546898.50, 4882118.50)	DC	761.	33.66775	(96053102)	AT	(546898.50, 4882118.50)	DC
722.	34.14090	(98082303)	AT	(546889.19, 4882115.00)	DC	762.	33.66774	(96053105)	AT	(546898.50, 4882118.50)	DC
723.	34.13286	(97102401)	AT	(546907.75, 4882121.50)	DC	763.	33.65913	(97103119)	AT	(546903.94, 4882117.50)	DC
724.	34.10164	(99022304)	AT	(546907.75, 4882121.50)	DC	764.	33.65400	(97010823)	AT	(546907.75, 4882121.50)	DC
725.	34.08695	(96022104)	AT	(546917.12, 4882124.50)	DC	765.	33.64781	(97100621)	AT	(546879.81, 4882112.00)	DC
726.	34.08695	(96022106)	AT	(546917.12, 4882124.50)	DC	766.	33.64780	(96101702)	AT	(546879.81, 4882112.00)	DC
727.	34.05094	(99020102)	AT	(546907.75, 4882121.50)	DC	767.	33.64466	(00121109)	AT	(546898.50, 4882118.50)	DC
728.	34.04044	(98111802)	AT	(546898.50, 4882118.50)	DC	768.	33.63289	(97111219)	AT	(546917.12, 4882124.50)	DC
729.	34.01290	(99021406)	AT	(546898.50, 4882118.50)	DC	769.	33.62834	(96011220)	AT	(546923.94, 4882117.50)	DC
730.	34.00990	(99062202)	AT	(546903.94, 4882117.50)	DC	770.	33.62007	(00112506)	AT	(546898.50, 4882118.50)	DC
731.	33.98706	(96102607)	AT	(546898.50, 4882118.50)	DC	771.	33.59620	(96022603)	AT	(546907.75, 4882121.50)	DC
732.	33.98287	(96020409)	AT	(546898.50, 4882118.50)	DC	772.	33.57705	(00021307)	AT	(546889.19, 4882115.00)	DC
733.	33.97748	(98070604)	AT	(546903.94, 4882117.50)	DC	773.	33.56105	(98101203)	AT	(546898.50, 4882118.50)	DC
734.	33.97305	(98021910)	AT	(546917.12, 4882124.50)	DC	774.	33.55648	(98020803)	AT	(546870.50, 4882109.00)	DC
735.	33.96921	(96111001)	AT	(546903.94, 4882117.50)	DC	775.	33.55225	(97122805)	AT	(546923.94, 4882117.50)	DC
736.	33.95852	(97082504)	AT	(546889.19, 4882115.00)	DC	776.	33.54653	(96090907)	AT	(546907.75, 4882121.50)	DC
737.	33.95470	(96022604)	AT	(546926.44, 4882127.50)	DC	777.	33.53447	(96011219)	AT	(546923.94, 4882117.50)	DC
738.	33.93187	(96090402)	AT	(546898.50, 4882118.50)	DC	778.	33.52296	(98092903)	AT	(546889.19, 4882115.00)	DC
739.	33.93053	(97092703)	AT	(546917.12, 4882124.50)	DC	779.	33.52296	(98101605)	AT	(546889.19, 4882115.00)	DC
740.	33.92311	(98010619)	AT	(546898.50, 4882118.50)	DC	780.	33.51482	(99062303)	AT	(546889.19, 4882115.00)	DC
741.	33.91549	(97082802)	AT	(546903.94, 4882117.50)	DC	781.	33.50299	(96091104)	AT	(546898.50, 4882118.50)	DC
742.	33.90879	(99091906)	AT	(546889.19, 4882115.00)	DC	782.	33.49590	(97052506)	AT	(546879.81, 4882112.00)	DC
743.	33.90879	(98091706)	AT	(546889.19, 4882115.00)	DC	783.	33.44445	(96020406)	AT	(546903.94, 4882117.50)	DC
744.	33.87656	(99050324)	AT	(546907.75, 4882121.50)	DC	784.	33.44445	(97020906)	AT	(546903.94, 4882117.50)	DC
745.	33.85674	(97112905)	AT	(546917.12, 4882124.50)	DC	785.	33.43260	(97012105)	AT	(546907.75, 4882121.50)	DC
746.	33.85229	(96091024)	AT	(546903.94, 4882117.50)	DC	786.	33.41693	(98042923)	AT	(546903.94, 4882117.50)	DC
747.	33.82631	(98120424)	AT	(546907.75, 4882121.50)	DC	787.	33.41232	(97111519)	AT	(546907.75, 4882121.50)	DC
748.	33.76841	(97092407)	AT	(546917.12, 4882124.50)	DC	788.	33.39428	(96050404)	AT	(546903.94, 4882117.50)	DC
749.	33.76610	(97060105)	AT	(546889.19, 4882115.00)	DC	789.	33.38971	(96111502)	AT	(546898.50, 4882118.50)	DC
750.	33.76466	(98090503)	AT	(546917.12, 4882124.50)	DC	790.	33.38248	(97120220)	AT	(546903.94, 4882117.50)	DC
751.	33.73705	(00060405)	AT	(546889.19, 4882115.00)	DC	791.	33.38248	(98021422)	AT	(546903.94, 4882117.50)	DC
752.	33.73577	(98072506)	AT	(546907.75, 4882121.50)	DC	792.	33.37653	(97071203)	AT	(546903.94, 4882117.50)	DC
753.	33.72865	(97071602)	AT	(546898.50, 4882118.50)	DC	793.	33.34238	(97020908)	AT	(546903.94, 4882117.50)	DC
754.	33.72865	(97071603)	AT	(546898.50, 4882118.50)	DC	794.	33.34237	(96020407)	AT	(546903.94, 4882117.50)	DC
755.	33.71231	(98021504)	AT	(546907.75, 4882121.50)	DC	795.	33.34237	(97021706)	AT	(546903.94, 4882117.50)	DC
756.	33.69925	(99051504)	AT	(546903.94, 4882117.50)	DC	796.	33.33907	(98021106)	AT	(546870.50, 4882109.00)	DC
757.	33.68746	(98020908)	AT	(546907.75, 4882121.50)	DC	797.	33.33572	(98041921)	AT	(546879.81, 4882112.00)	DC
758.	33.68295	(99103006)	AT	(546907.75, 4882121.50)	DC	798.	33.31853	(98020801)	AT	(546898.50, 4882118.50)	DC
759.	33.67324	(96090403)	AT	(546917.12, 4882124.50)	DC	799.	33.31020	(99012521)	AT	(546898.50, 4882118.50)	DC
760.	33.67030	(98010505)	AT	(546889.19, 4882115.00)	DC	800.	33.30831	(00012905)	AT	(546926.44, 4882127.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
801.	33.29763	(96072123)	AT	(546898.50, 4882118.50)	DC	841.	32.98350	(96120418)	AT	(546903.94, 4882117.50)	DC
802.	33.29365	(00120907)	AT	(546879.81, 4882112.00)	DC	842.	32.97386	(96080401)	AT	(546889.19, 4882115.00)	DC
803.	33.28606	(97092620)	AT	(546898.50, 4882118.50)	DC	843.	32.96822	(98020907)	AT	(546907.75, 4882121.50)	DC
804.	33.28046	(98020904)	AT	(546903.94, 4882117.50)	DC	844.	32.96822	(99020106)	AT	(546907.75, 4882121.50)	DC
805.	33.27967	(00120818)	AT	(546879.81, 4882112.00)	DC	845.	32.95335	(98091323)	AT	(546879.81, 4882112.00)	DC
806.	33.27137	(96101701)	AT	(546898.50, 4882118.50)	DC	846.	32.95046	(96010522)	AT	(546907.75, 4882121.50)	DC
807.	33.27136	(96102603)	AT	(546898.50, 4882118.50)	DC	847.	32.95045	(00020805)	AT	(546907.75, 4882121.50)	DC
808.	33.27136	(97101721)	AT	(546898.50, 4882118.50)	DC	848.	32.93802	(97101706)	AT	(546898.50, 4882118.50)	DC
809.	33.26423	(96120501)	AT	(546898.50, 4882118.50)	DC	849.	32.89613	(97032806)	AT	(546889.19, 4882115.00)	DC
810.	33.26423	(98022805)	AT	(546898.50, 4882118.50)	DC	850.	32.89086	(96061801)	AT	(546889.19, 4882115.00)	DC
811.	33.26110	(97012620)	AT	(546903.94, 4882117.50)	DC	851.	32.88582	(96111707)	AT	(546907.75, 4882121.50)	DC
812.	33.25866	(98012107)	AT	(546898.50, 4882118.50)	DC	852.	32.87950	(96053103)	AT	(546898.50, 4882118.50)	DC
813.	33.25703	(96011221)	AT	(546917.12, 4882124.50)	DC	853.	32.87318	(99011202)	AT	(546870.50, 4882109.00)	DC
814.	33.25690	(96022602)	AT	(546898.50, 4882118.50)	DC	854.	32.86786	(96110924)	AT	(546898.50, 4882118.50)	DC
815.	33.23936	(98050102)	AT	(546889.19, 4882115.00)	DC	855.	32.85055	(99051604)	AT	(546917.12, 4882124.50)	DC
816.	33.22982	(98090104)	AT	(546898.50, 4882118.50)	DC	856.	32.84573	(96031507)	AT	(546879.81, 4882112.00)	DC
817.	33.22982	(00110202)	AT	(546898.50, 4882118.50)	DC	857.	32.84468	(00100924)	AT	(546898.50, 4882118.50)	DC
818.	33.22980	(96111704)	AT	(546898.50, 4882118.50)	DC	858.	32.83607	(97041403)	AT	(546917.12, 4882124.50)	DC
819.	33.22872	(97122809)	AT	(546926.44, 4882127.50)	DC	859.	32.83173	(96092101)	AT	(546907.75, 4882121.50)	DC
820.	33.21034	(97122109)	AT	(546898.50, 4882118.50)	DC	860.	32.82343	(97122806)	AT	(546923.94, 4882117.50)	DC
821.	33.20512	(99061906)	AT	(546903.94, 4882117.50)	DC	861.	32.81361	(98062805)	AT	(546907.75, 4882121.50)	DC
822.	33.19718	(97062603)	AT	(546903.94, 4882117.50)	DC	862.	32.79255	(98021202)	AT	(546907.75, 4882121.50)	DC
823.	33.17983	(96100402)	AT	(546898.50, 4882118.50)	DC	863.	32.79042	(97060801)	AT	(546898.50, 4882118.50)	DC
824.	33.17216	(96091022)	AT	(546898.50, 4882118.50)	DC	864.	32.78955	(98042204)	AT	(546889.19, 4882115.00)	DC
825.	33.14830	(97020901)	AT	(546903.94, 4882117.50)	DC	865.	32.78952	(99030823)	AT	(546889.19, 4882115.00)	DC
826.	33.14830	(96020408)	AT	(546903.94, 4882117.50)	DC	866.	32.78865	(99011201)	AT	(546898.50, 4882118.50)	DC
827.	33.13215	(98020723)	AT	(546898.50, 4882118.50)	DC	867.	32.77720	(98011802)	AT	(546870.50, 4882109.00)	DC
828.	33.13215	(99020101)	AT	(546898.50, 4882118.50)	DC	868.	32.77719	(99011218)	AT	(546870.50, 4882109.00)	DC
829.	33.13215	(00120222)	AT	(546898.50, 4882118.50)	DC	869.	32.77601	(96093007)	AT	(546907.75, 4882121.50)	DC
830.	33.12452	(97121120)	AT	(546898.50, 4882118.50)	DC	870.	32.76557	(99013123)	AT	(546903.94, 4882117.50)	DC
831.	33.11668	(96031207)	AT	(546917.12, 4882124.50)	DC	871.	32.76347	(97022818)	AT	(546926.44, 4882127.50)	DC
832.	33.10393	(98012101)	AT	(546907.75, 4882121.50)	DC	872.	32.74958	(99030804)	AT	(546898.50, 4882118.50)	DC
833.	33.08636	(99020107)	AT	(546903.94, 4882117.50)	DC	873.	32.72383	(96092420)	AT	(546903.94, 4882117.50)	DC
834.	33.08636	(99020104)	AT	(546903.94, 4882117.50)	DC	874.	32.71965	(98062306)	AT	(546903.94, 4882117.50)	DC
835.	33.08208	(98021203)	AT	(546898.50, 4882118.50)	DC	875.	32.70461	(99020108)	AT	(546903.94, 4882117.50)	DC
836.	33.06446	(98062304)	AT	(546907.75, 4882121.50)	DC	876.	32.68955	(98020803)	AT	(546879.81, 4882112.00)	DC
837.	33.02693	(00030406)	AT	(546917.12, 4882124.50)	DC	877.	32.68895	(97071204)	AT	(546898.50, 4882118.50)	DC
838.	33.02519	(96020303)	AT	(546907.75, 4882121.50)	DC	878.	32.66943	(97102601)	AT	(546898.50, 4882118.50)	DC
839.	33.02519	(97020907)	AT	(546907.75, 4882121.50)	DC	879.	32.66589	(98021605)	AT	(546870.50, 4882109.00)	DC
840.	33.01237	(98010623)	AT	(546889.19, 4882115.00)	DC	880.	32.66085	(99101207)	AT	(546907.75, 4882121.50)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
881.	32.65689	(96081205)	AT	(546889.19, 4882115.00)	DC	921.	32.31916	(98010505)	AT	(546879.81, 4882112.00)	DC
882.	32.65299	(96090203)	AT	(546903.94, 4882117.50)	DC	922.	32.30599	(99052023)	AT	(546898.50, 4882118.50)	DC
883.	32.65298	(96090103)	AT	(546903.94, 4882117.50)	DC	923.	32.30598	(00052704)	AT	(546898.50, 4882118.50)	DC
884.	32.64448	(96010606)	AT	(546903.94, 4882117.50)	DC	924.	32.28434	(99081204)	AT	(546907.75, 4882121.50)	DC
885.	32.63214	(98042203)	AT	(546898.50, 4882118.50)	DC	925.	32.28308	(97020201)	AT	(546923.94, 4882117.50)	DC
886.	32.63213	(97051801)	AT	(546898.50, 4882118.50)	DC	926.	32.28299	(97090903)	AT	(546870.50, 4882109.00)	DC
887.	32.63191	(97121419)	AT	(546917.12, 4882124.50)	DC	927.	32.28296	(00102302)	AT	(546870.50, 4882109.00)	DC
888.	32.60433	(99062603)	AT	(546903.94, 4882117.50)	DC	928.	32.28295	(96100404)	AT	(546870.50, 4882109.00)	DC
889.	32.60374	(99050401)	AT	(546898.50, 4882118.50)	DC	929.	32.24069	(97060322)	AT	(546907.75, 4882121.50)	DC
890.	32.60373	(99050123)	AT	(546898.50, 4882118.50)	DC	930.	32.24068	(97082402)	AT	(546907.75, 4882121.50)	DC
891.	32.59568	(99120907)	AT	(546923.94, 4882117.50)	DC	931.	32.23523	(96101105)	AT	(546898.50, 4882118.50)	DC
892.	32.57102	(97091603)	AT	(546917.12, 4882124.50)	DC	932.	32.22931	(00101723)	AT	(546898.50, 4882118.50)	DC
893.	32.56692	(97120822)	AT	(546907.75, 4882121.50)	DC	933.	32.22843	(96092324)	AT	(546917.12, 4882124.50)	DC
894.	32.54725	(99051606)	AT	(546917.12, 4882124.50)	DC	934.	32.22843	(98092906)	AT	(546917.12, 4882124.50)	DC
895.	32.52676	(98121809)	AT	(546903.94, 4882117.50)	DC	935.	32.22678	(97090103)	AT	(546898.50, 4882118.50)	DC
896.	32.52293	(99020703)	AT	(546923.94, 4882117.50)	DC	936.	32.22146	(98112821)	AT	(546898.50, 4882118.50)	DC
897.	32.51314	(96101504)	AT	(546898.50, 4882118.50)	DC	937.	32.20370	(96011804)	AT	(546926.44, 4882127.50)	DC
898.	32.51314	(97101907)	AT	(546898.50, 4882118.50)	DC	938.	32.19732	(98010621)	AT	(546923.94, 4882117.50)	DC
899.	32.50821	(99012906)	AT	(546923.94, 4882117.50)	DC	939.	32.19593	(00110621)	AT	(546870.50, 4882109.00)	DC
900.	32.49508	(99100207)	AT	(546917.12, 4882124.50)	DC	940.	32.18094	(96010701)	AT	(546903.94, 4882117.50)	DC
901.	32.48235	(00042804)	AT	(546907.75, 4882121.50)	DC	941.	32.17963	(96022521)	AT	(546903.94, 4882117.50)	DC
902.	32.47980	(97031304)	AT	(546898.50, 4882118.50)	DC	942.	32.17958	(00012924)	AT	(546883.94, 4882097.50)	DC
903.	32.45510	(99022303)	AT	(546903.94, 4882117.50)	DC	943.	32.17500	(00080501)	AT	(546889.19, 4882115.00)	DC
904.	32.45149	(96050403)	AT	(546903.94, 4882117.50)	DC	944.	32.16477	(97052724)	AT	(546903.94, 4882117.50)	DC
905.	32.44532	(96122622)	AT	(546907.75, 4882121.50)	DC	945.	32.15298	(96080502)	AT	(546907.75, 4882121.50)	DC
906.	32.42923	(00122105)	AT	(546907.75, 4882121.50)	DC	946.	32.15298	(97080903)	AT	(546907.75, 4882121.50)	DC
907.	32.42574	(00110303)	AT	(546898.50, 4882118.50)	DC	947.	32.15259	(98011918)	AT	(546926.44, 4882127.50)	DC
908.	32.42145	(96122904)	AT	(546923.94, 4882117.50)	DC	948.	32.15100	(96020308)	AT	(546870.50, 4882109.00)	DC
909.	32.42089	(97030302)	AT	(546898.50, 4882118.50)	DC	949.	32.14724	(96050802)	AT	(546903.94, 4882117.50)	DC
910.	32.41892	(98010624)	AT	(546870.50, 4882109.00)	DC	950.	32.14070	(97101903)	AT	(546907.75, 4882121.50)	DC
911.	32.40541	(96121404)	AT	(546898.50, 4882118.50)	DC	951.	32.14070	(97101906)	AT	(546907.75, 4882121.50)	DC
912.	32.39673	(96090105)	AT	(546898.50, 4882118.50)	DC	952.	32.14069	(97101805)	AT	(546907.75, 4882121.50)	DC
913.	32.38839	(98021606)	AT	(546883.94, 4882097.50)	DC	953.	32.13839	(97010123)	AT	(546898.50, 4882118.50)	DC
914.	32.38089	(97031608)	AT	(546917.12, 4882124.50)	DC	954.	32.13839	(00011410)	AT	(546898.50, 4882118.50)	DC
915.	32.37603	(98010516)	AT	(546898.50, 4882118.50)	DC	955.	32.13384	(96042722)	AT	(546903.94, 4882117.50)	DC
916.	32.35895	(97020904)	AT	(546926.44, 4882127.50)	DC	956.	32.11641	(96092407)	AT	(546898.50, 4882118.50)	DC
917.	32.35212	(99012901)	AT	(546903.94, 4882117.50)	DC	957.	32.11423	(98102706)	AT	(546898.50, 4882118.50)	DC
918.	32.34797	(98111605)	AT	(546917.12, 4882124.50)	DC	958.	32.11423	(99103005)	AT	(546898.50, 4882118.50)	DC
919.	32.34037	(98072504)	AT	(546903.94, 4882117.50)	DC	959.	32.11159	(97091601)	AT	(546917.12, 4882124.50)	DC
920.	32.33990	(99090405)	AT	(546898.50, 4882118.50)	DC	960.	32.09177	(98100421)	AT	(546870.50, 4882109.00)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE MAXIMUM 1000 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): S1 , S4A , S4B , S5A , S5B ,

** CONC OF ODOUR IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
961.	32.08360	(98050605)	AT	(546903.94, 4882117.50)	DC	981.	31.99024	(99091805)	AT	(546907.75, 4882121.50)	DC
962.	32.06796	(00080402)	AT	(546903.94, 4882117.50)	DC	982.	31.99023	(96102604)	AT	(546907.75, 4882121.50)	DC
963.	32.06795	(96082206)	AT	(546903.94, 4882117.50)	DC	983.	31.98750	(98091505)	AT	(546889.19, 4882115.00)	DC
964.	32.05191	(96092005)	AT	(546907.75, 4882121.50)	DC	984.	31.97840	(96083123)	AT	(546903.94, 4882117.50)	DC
965.	32.05191	(98100321)	AT	(546907.75, 4882121.50)	DC	985.	31.97188	(96080224)	AT	(546889.19, 4882115.00)	DC
966.	32.05191	(97092621)	AT	(546907.75, 4882121.50)	DC	986.	31.96534	(97092802)	AT	(546907.75, 4882121.50)	DC
967.	32.02731	(00092605)	AT	(546926.44, 4882127.50)	DC	987.	31.95259	(96111705)	AT	(546870.50, 4882109.00)	DC
968.	32.02330	(96010601)	AT	(546889.19, 4882115.00)	DC	988.	31.94160	(99050406)	AT	(546898.50, 4882118.50)	DC
969.	32.02281	(96101705)	AT	(546907.75, 4882121.50)	DC	989.	31.93582	(98101702)	AT	(546907.75, 4882121.50)	DC
970.	32.01030	(00090904)	AT	(546903.94, 4882117.50)	DC	990.	31.93541	(97082406)	AT	(546917.12, 4882124.50)	DC
971.	32.00715	(99090501)	AT	(546879.81, 4882112.00)	DC	991.	31.93515	(97060306)	AT	(546898.50, 4882118.50)	DC
972.	31.99941	(98082706)	AT	(546898.50, 4882118.50)	DC	992.	31.92490	(96101623)	AT	(546907.75, 4882121.50)	DC
973.	31.99941	(98072503)	AT	(546898.50, 4882118.50)	DC	993.	31.92490	(96090324)	AT	(546907.75, 4882121.50)	DC
974.	31.99702	(99091906)	AT	(546879.81, 4882112.00)	DC	994.	31.92489	(96092520)	AT	(546907.75, 4882121.50)	DC
975.	31.99701	(98091706)	AT	(546879.81, 4882112.00)	DC	995.	31.92402	(98022803)	AT	(546889.19, 4882115.00)	DC
976.	31.99389	(96091303)	AT	(546907.75, 4882121.50)	DC	996.	31.92256	(97042101)	AT	(546903.94, 4882117.50)	DC
977.	31.99339	(98091801)	AT	(546907.75, 4882121.50)	DC	997.	31.92062	(99121122)	AT	(546923.94, 4882117.50)	DC
978.	31.99339	(00090701)	AT	(546907.75, 4882121.50)	DC	998.	31.91509	(96080302)	AT	(546898.50, 4882118.50)	DC
979.	31.99125	(96010603)	AT	(546903.94, 4882117.50)	DC	999.	31.90748	(98123023)	AT	(546926.44, 4882127.50)	DC
980.	31.99024	(98091805)	AT	(546907.75, 4882121.50)	DC	1000.	31.90654	(97012110)	AT	(546870.50, 4882109.00)	DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

APPENDIX F

ODOUR MANAGEMENT PLAN

ACME WASTE INC.
ODOUR MANAGEMENT PLAN

ACME OTHERTOWN COMPOSTING FACILITY

Prepared By: ACME Waste Inc.
Publication Date: 2009.10.28
Rev: Master Doc.

APPENDIX G

ODOUR LITERATURE STUDY RESULTS

Summary of Odour Levels Going into the Biofilter for Organics Management Facilities

Location/Source	Odour Levels	Comments
Rendering Plants Odours	10,200 OU/m3 (Max.) 6,275 OU/m3 (Avg)	Article in Render Magazine detailing odour concentrations at rendering Facilities.
Source Separated Organics (Municipality of Overtheretown)	6,150 OU/m3	From Paper titled " Municipal Odour Management" dated January 2008.
Source Separated Organics & Biosolids (Town of Faraway Land)	13,085 OU/m3	From Paper titled " Municipal Odour Management" dated January 2008.

APPENDIX H

MANUFACTURER EQUIPMENT SPECIFICATIONS

ANYTOWN BIOFILTER MANUFACTURER

321 Odoura Way
Anytown, Ontario
S1C 2B2

Performance Requirements

The biofilter will be capable of achieving the following performance requirements:

1. The biofilter system shall achieve an odour reduction efficiency greater than 90%.

2. ●☎❒♏ ⬩♒☎●● ⬩◆⬩♦☎✲■ ⬩♦☎♌●♏ ♍□❍♌◆⬩♦✲□■ ⬩✲♦♒ ▤🗀🕭 ♦□ ▯🗀🕭❍♏♦♒☎■♏ ♍□■ ♍♏■♦❒☎♦✲□■⬩ ☎♦ ♦♒♏ ❍☎☒✲❍◆❍ ↗●□⬩ ❒☎♦♏🖃 ⬩♒✲●♏ ❍☎✲■♦☎✲■✲■♈ ♦♒♏ □□♏❒ ☎♦✲■♈ ♦♏❍□♏❒☎♦◆❒♏🖃 ⬩✲♦♒□◆♦ ❒♏❑◆✲❒✲■♈ ☎■🖂 ♌◆❒■♏❒ ☎♎er◆⬩♦❍♏■♦🖋

3. 🖍□■⬩✲♎♏❒✲■♈ ☎ ▯🗀🕭 ❍♏♦♒☎■♏ ♍□■♍♏■♦❒☎♦✲□■🖃 ☎●● ↗●☎❒♏⬩ ♎♏⬩✲♈■♏♎ ↗ □❒ ↗●□⬩ ❒☎♦♏⬩ □↗ 🗁▯🗀🗀 ♦🖍☛🖋 □❒ ♈❒♏☎♦♏❒ ❍◆⬩♦ ☎♍♒✲♏❖♏ ☎ 🗁🗀💻🗁 ✲■⬩♦ ☎■♦☎■♏□◆⬩ ♒♏☎♦ ❒♏●♏☎⬩♏ ♦◆❒■♎□⬩■ ❍✲■✲❍◆❍🖋 ☞●☎❒♏⬩ ♎♏⬩✲♈■♏♎ ↗❒❒ ↗●□⬩ ❒☎♦♏⬩ ●♏⬩⬩ ♦♒☎■ 🗁▯🗀🗀 ♦🖍☛🖋🖃 ❍◆⬩♦ ☎♍♒✲♏❖♏ ☎ 🖃🖃▯🗀🖃🗀🗀🗀 🖎❄✞🖃♒❒ ♒♏ ☎♦ ❒♏●♏☎⬩♏ ❍✲■✲❍◆❍🖋 🖗♍♒✲♏❖✲■♈ ♦♒♏ ⬩□♏♍✲↗✲♏♎ ♦◆❒■♎□⬩■ ❍◆⬩♦ ■□♦ ❒♏❑ ◆✲❒♏ ☎■🖂 ♌◆❒■♏❒ ☎♎er◆⬩♦❍♏■♦ □❒ ↗●☎❒♏ ❍□♎✲↗✲♍☎◆✲■♈4.

Equipment Description

1. Inorganic media●☎❒♏ ⬩♒☎●● ⬩◆⬩♦☎✲■ ⬩♦☎♌●♏
2. Bed Depth - 2m
3. Biofilter Dimensions – 17m x 8m
4. Porosity-30 and 40%;
5. Retention Time-35 second Empty Bed Residence Time
6. Humidification System●☎❒♏ ⬩♒☎●● ⬩◆⬩♦☎✲■ ⬩♦☎♌●♏
7. Temperature Monitoring System●☎❒♏ ⬩♒☎●● ⬩◆⬩♦☎✲■ ⬩♦☎♌●♏

Other Equipment

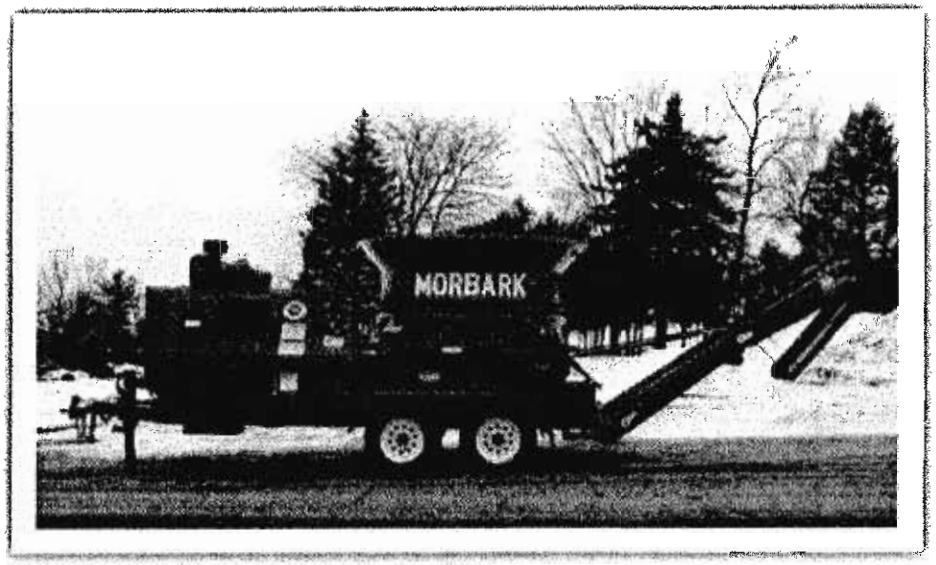
□❒ ↗●□⬩ ❒☎♦♏⬩ □↗ 🗁▯🗀🗀 ♦🖍☛🖋 □❒ ♈❒♏☎♦♏❒ ❍◆⬩♦ ☎♍♒✲♏❖♏ ☎ 🗁🗀💻🗁 ✲■⬩♦ ☎■♦☎■♏□◆⬩ ♒♏☎♦ ❒♏●♏☎⬩♏ ♦◆❒■♎□⬩■ ❍✲■✲❍◆❍🖋 ☞●☎❒♏⬩ ♎♏⬩✲♈■♏♎ ↗❒❒ ↗●□⬩ ❒☎♦♏⬩ ●♏⬩⬩ ♦♒☎■ 🗁▯🗀🗀 ♦🖍☛🖋🖃 ❍◆⬩♦ ☎♍♒✲♏❖♏ ☎ 🖃🖃▯🗀🖃🗀🗀🗀 🖎❄✞🖃♒❒ ♒♏ ☎♦ ❒♏●♏☎⬩♏ ❍✲■✲❍◆❍🖋 🖗♍♒✲♏❖✲■♈ ♦♒♏ ⬩□♏♍✲↗✲♏♎ ♦◆❒■♎□⬩■ ❍◆⬩♦ ■□♦ ❒♏❑ ◆✲❒♏ ☎■🖂 ♌◆❒■♏❒ ☎♎er◆⬩♦❍♏■♦ □❒ ↗●☎❒♏ ❍□♎✲↗✲♍☎◆✲■♈

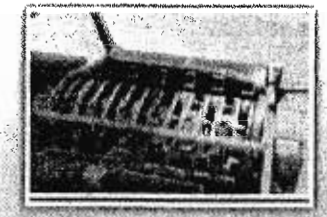
System Operation

□❒ ↗●□⬩ ❒☎♦♏⬩ □↗ 🗁▯🗀🗀 ♦🖍☛🖋 □❒ ♈❒♏☎♦♏❒ ❍◆⬩♦ ☎♍♒✲♏❖♏ ☎ 🗁🗀💻🗁 ✲■⬩♦ ☎■♦☎■♏□◆⬩ ♒♏☎♦ ❒♏●♏☎⬩♏ ♦◆❒■♎□⬩■ ❍✲■✲❍◆❍🖋 ☞●☎❒♏⬩ ♎♏⬩✲♈■♏♎ ↗❒❒ ↗●□⬩ ❒☎♦♏⬩ ●♏⬩⬩ ♦♒☎■ 🗁▯🗀🗀 ♦🖍☛🖋🖃 ❍◆⬩♦ ☎♍♒✲♏❖♏ ☎ 🖃🖃▯🗀🖃🗀🗀🗀 🖎❄✞🖃♒❒ ♒♏ ☎♦ ❒♏●♏☎⬩♏ ❍✲■✲❍◆❍🖋 🖗♍♒✲♏❖✲■♈ ♦♒♏ ⬩□♏♍✲↗✲♏♎ ♦◆❒■♎□⬩■ ❍◆⬩♦ ■□♦ ❒♏❑ ◆✲❒♏ ☎■🖂 ♌◆❒■♏❒ ☎♎er◆⬩♦❍♏■♦ □❒ ↗●☎❒♏ ❍□♎✲↗✲♍☎◆✲■♈

BENEFITS

- A compact, easy to haul tub grinder for lower volume applications.
- Process yard waste, pallets and other mixed woody feedstocks into saleable products.
- Backed by a world class parts & service support team.
- Long lasting, durable machine that holds its value.
- Proven drive line protection system that protects against catastrophic damage from contaminants.
- Built in a quality-driven factory by highly experienced personnel.





HAMMERMILL
Laser-cut, factory balanced hammermills with forged hammers offer unsurpassed durability and smooth operation.

HYDRAULIC AUGERS
Quickly remove product from beneath the mill. During material surges, pressure sensors on the auger system automatically slow tub rotation to prevent plugging.

TORQUE LIMITER
The full breakaway torque limiter system protects the engine and clutch against shock and overload without stalling the enigne.

TUB TILT
Provides easy access to grates and anvil for routine maintenance.

SPECIFICATIONS

GENERAL

Length (operating)	29'5"
Length (transport)	22'
Height (transport)	12'5"
Width	8'4"
Gross weight	13,720 lbs.
Axle weight	11,620 lbs.
Tongue weight	2,100 lbs.
Engine	CAT, Cummins, or John Deere
Horsepower	174 HP to 213 HP
Fuel capacity (tank)	59 gallons
Hydraulic oil capacity	50 gallons

Front stabilizer
Dual axles

TUB
Hydraulic tilt
8'4" diameter tub opening, 6'6" diameter at inside base and 44" deep
Wall constructed of 1/4" reinforced steel plate, floor constructed of 1/4" thick T-1 wear-resistant steel
Tub supported by five rubber guide rolls
Hydraulic forward and reverse with tub sensor
Safety shut down system
Tub cover for debris containment

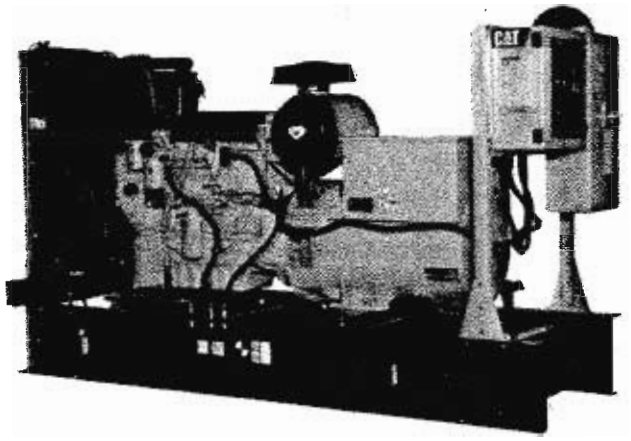
HAMMERMILL AND SCREENS
22-1/2" x 32-1/2" Hammermill system constructed of a heavy duty 16" diameter laser cut rotor, (13) 1-1/8" thick 2-piece laser-cut rotor plates to ensure precision and enforce steel strength. The plates are keyed on a 4-1/2" diameter rotor shaft with 2-15/16" bearings direct driven at engine RPM's and (8) 1-1/4" hammer retaining rods. Complete with (24) 1-1/8" balanced forged hard-surfaced hammers and (24) 2-1/4" wide replaceable hammerhead inserts
3/4" thick T-1 steel heavy-duty split screens

DISCHARGE SYSTEM
Two 12" diameter discharge augers
28" wide x 12' long conveyor with hydraulic fold for transport

OPTIONS
Magnetized end pulley with collecting slide tray for ferrous metal removal
Wireless radio remote control
Fifth wheel towing arrangement
28" wide x 15' long folding discharge conveyor
Single tub slide tray assembly
Dual tub slide tray assembly

800-831-0042 • 989-866-2381
www.morbark.com

DIESEL GENERATOR SET



Picture shown may not reflect actual package

STANDBY 125-150 kW
PRIME 114-135 kW

60 Hz

Model	Standby kW (kVA)	Prime kW (kVA)
D125-6	125 (156.3)	114 (142.5)
D150-8	150 (187.5)	135 (168.8)

Tier 3 EPA Approved, Emissions Certified

FEATURES

GENERATOR SET
- Complete system designed and built at ISO 9001 certified facilities
- Factory tested to design specifications at full load conditions

ENGINE
- Governor, electronic
- Electrical system, 12 VDC
- Cartridge type filters
- Battery rack and cables
- Coolant and lube drains piped to edge of base

GENERATOR
- Insulation system, class H
- Drip proof generator air intake (NEMA 2, IP23)
- Electrical design in accordance with BS5000 Part 99, EN61000-6, IEC60034-1, NEMA MG-1.33

CONTROL SYSTEM
- EMCP 3.1 digital control panel
- Vibration isolated NEMA 1 enclosure with lockable hinged door
- DC and AC wiring harnesses

MOUNTING ARRANGEMENT
- Heavy-duty fabricated steel base with lifting points
- Anti-vibration pads to ensure vibration isolation
- Complete OSHA guarding
- Stub-up pipe ready for connection to silencer pipework
- Flexible fuel lines to base with NPT connections

COOLING SYSTEM
- Radiator and cooling fan complete with protective guards
- Standard ambient temperatures up to 50° C (122° F)

CIRCUIT BREAKER
- UL/CSA listed
- 3-pole with solid neutral
- NEMA 1 steel enclosure, vibration isolated
- Electrical stub-up area directly below circuit breaker

AUTOMATIC VOLTAGE REGULATOR
- Voltage within ± 0.5% 3-phase at steady state from no load to full load
- Provides fast recovery from transient load changes

EQUIPMENT FINISH
- All electroplated hardware
- Anticorrosive paint protection
- High gloss polyurethane paint for durability and scuff resistance

QUALITY STANDARDS
- BS4999, BS5000, BS5514, EN61000-6, IEC60034, NEMA MG-1.33, NFPA 110 (with optional equipment)

DOCUMENTATION
- Operation and maintenance manuals provided
- Wiring diagrams included

WARRANTY
- All equipment carries full manufacturer's warranty.

OPTIONAL EQUIPMENT*

ENCLOSURE
- B Series weather protective enclosure (includes internal silencer system)
- Sound attenuated enclosure (includes internal silencer system)
  - Single point lift
  - Panel viewing window
  - External emergency stop pushbutton

SILENCER SYSTEM – OPEN UNIT
- Level 1 silencer
- Level 2 silencer
- Level 3 silencer
- Mounting kit
- Through-wall installation kits

ENGINE
- Battery heater
- Lube oil drain pump
- High lube oil temperature shutdown
- Lube oil sump heater

CIRCUIT BREAKER
- Auxiliary voltfree contacts
- Shunt trip

GENERATOR
- Anti-condensation heater
- Permanent magnet generator
- AREP excitation system
- Generator upgrade 1 size

CONTROL SYSTEM
- No control system
- EMCP 3.2 digital control panel

MOUNTING ACCESSORIES
- Seismic (Zone 4) vibration isolators

FUEL SYSTEM
- UL listed closed top-diked skid-mounted fuel tank base (12/24-hour capacity) with fuel alarm (low level/leak detected)
- Critical high fuel alarm
- Critical low fuel level shutdown

COOLING SYSTEM
- Coolant heater
- Low coolant temperature alarm
- Low coolant level shutdown
- Radiator transition flange

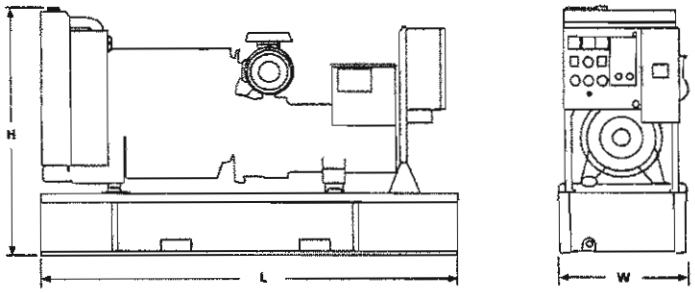
REMOTE ANNUNCIATORS
- 16-channel remote annunciator panel (supplied loose)

MISCELLANEOUS ACCESSORIES
- Toolkit
- Additional operator's manual pack
- Special enclosure color
- UL listing
- CSA certification
- French or Spanish language labels

EXTENDED SERVICE CONTRACTS
- Extended Service Coverage available

* Some options may not be available on all models. Not all options are listed.

GENERATOR SET DIMENSIONS AND WEIGHTS



Model	Length mm (in)	Width mm (in)	Height mm (in)	Weight kg (lb)*
D125-6	2780 (109.4)	900 (35.4)	1543 (60.7)	1347 (2,970)
D150-8	2780 (109.4)	900 (35.4)	1543 (60.7)	1407 (3,102)

NOTE: General configuration not to be used for installation. See specific dimensional drawings for detail.

*Includes oil and coolant

STANDBY 125-150 kW
PRIME 114-135 kW
60 Hz

SPECIFICATIONS

GENERATOR

Voltage regulation ..... ± 0.5% 3-phase at steady state from no load to full load
Frequency ..... ± 0.25% for constant load, no load to full load
Waveform distortion ..... THD < 4%, at no load
Radio interference ..... Compliance with EN61000-6
Telephone interference ..... TIF < 50, THF < 2%
Overspeed limit ..... 2250 rpm
Insulation ..... Class H
Temperature rise ..... Within Class H limits
Available voltages 277/480, 266/460, 120/240, 127/220, 120/208, 347/600
Deration ..... Consult factory for available outputs
Ratings ..... At 30° C (86° F), 152.4 m (500 ft), 60% humidity, 0.8 pf

ENGINE

Manufacturer ..... Caterpillar
Type 4-cycle
Bore – mm (in) 105.0 (4.13)
Stroke – mm (in) 127.0 (5.00)
Governor Type ..... Electronic
Class G2
Piston speed – m/sec (ft/sec) 7.62 (25.0)
Engine speed – rpm 1800
Air cleaner type ..... Dry, replaceable paper element type with restriction indicator

D125-6 – C6.6 ACERT

Aspiration ..... ATAAC
Cylinder configuration ..... In-line 6
Displacement – L (cu in) 6.6 (404)
Compression ratio 16.3:1
Max power at rated rpm – kW (hp)
  Standby 161.6 (217)
  Prime 144.6 (194)
BMEP – kPa (psi)
  Standby 1633 (237)
  Prime 1461 (212)
Regenerative power – kW (hp) 14.9 (20)

D150-8 – C6.6 ACERT

Aspiration ..... ATAAC
Cylinder configuration ..... In-line 6
Displacement – L (cu in) 6.6 (404)
Compression ratio 16.3:1
Max power at rated rpm – kW (hp)
  Standby 171.3 (230)
  Prime 154.4 (207)
BMEP – kPa (psi)
  Standby 1731 (251)
  Prime 1560 (226)
Regenerative power – kW (hp) 14.9 (20)

CONTROL PANEL

- Heavy duty sheet steel enclosure with lockable hinged door
- Vibration isolated from generating set
- LCD display
- AC metering
- DC metering
- Fail to start shutdown
- Low oil pressure shutdown
- High engine temperature
- Low/high battery voltage
- Underspeed/overspeed
- Loss of engine speed detection
- 2 spare fault channels
- 20 event fault log
- 2 LED status indicators
- Lockdown emergency stop push button

RATING DEFINITIONS AND CONDITIONS

Standby – Applicable for supplying continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted on these ratings. The generator is peak rated (as defined in ISO8528-3).

Prime – Applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and the generator set can supply 10 percent overload power for 1 hour in 12 hours.

STANDBY 125-150 kW
PRIME 114-135 kW
60 Hz

D125-6 (3-Phase)

Materials and specifications are subject to change without notice.

Generator Set Technical Data – 1800 rpm/60 Hz			Standby		Prime	
Power Rating	kW	kVA	125	156.3	114	142.5
Lubricating System						
Type: full pressure						
Oil filter: spin-on, full flow						
Oil cooler: watercooled						
Oil type required: API CH4/CI4						
Total oil capacity	L	U.S. gal	16.5	4.4	16.5	4.4
Oil pan	L	U.S. gal	15.5	4.1	15.5	4.1
Fuel System						
Generator set fuel consumption						
100% load	L/hr	gal/hr	40.6	10.7	36.0	9.5
75% load	L/hr	gal/hr	31.6	8.3	30.0	7.9
50% load	L/hr	gal/hr	24.6	6.5	23.2	6.1
Engine Electrical System						
Voltage/ground: 12/negative						
Battery charging generator ampere rating	amps		100		100	
Cooling System						
Water pump type: centrifugal						
Radiator system capacity incl. engine	L	U.S. gal	21.0	5.5	21.0	5.5
Maximum coolant static head	m H_2O	ft H_2O	8.0	26.0	8.0	26.0
Coolant flow rate	L/hr	U.S. gal/hr	10 200	2,693	10 200	2,693
Minimum temperature to engine	°C	°F	85	185	85	185
Temperature rise across engine	°C	°F	7.9	14.2	7.9	14.2
Heat rejected to coolant at rated power	kW	Btu/min	74.9	4,262	69.8	3,971
Total heat radiated to room at rated power	kW	Btu/min	13.0	740	12.1	688
Radiator fan load	kW	hp	8.0	10.7	8.0	10.7
Air Requirements						
Combustion air flow	m³/min	cfm	12.6	445	12.3	434
Maximum air cleaner restriction	kPa	in H_2O	5	20	5	20
Radiator cooling air (zero restriction)	m³/min	cfm	327	11,548	327	11,548
Generator cooling air	m³/min	cfm	26.4	923	26.4	923
Allowable air flow restriction (after radiator)	kPa	in H_2O	0.12	0.50	0.12	0.50
Cooling air flow (@ rated speed)						
Rate with restriction	m³/min	cfm	317	11,195	317	11,195
Exhaust System						
Maximum allowable backpressure	kPa	in Hg	15	4.4	15	4.4
Exhaust flow at rated kW	m³/min	cfm	29.7	1,049	28.6	1,010
Exhaust temperature at rated kW – Dry exhaust	°C	°F	437	819	427	801
Generator Set Noise Rating* (without attenuation) at 1 m (3 ft)	dB(A)		97		97	

Generator Technical Data		277/480V	266/460V	127/220V	120/240V 120/208V	347/600V
Motor Starting Capability: (kVA) (30% voltage dip)	Self excited	360	335	311	283	N/A
	PM excited**	469	437	406	370	437
	AREP excited	469	437	406	370	437
Full Load Efficiencies:	Standby	92.7	92.6	92.5	92.3	92.6
	Prime	92.8	92.8	92.7	92.5	92.8
Reactances (per unit):	X_d	2.74	2.99	3.27	3.65	2.99
	X'_d	0.10	0.10	0.11	0.13	0.10
Reactances shown are applicable to the standby rating.	X''_d	0.057	0.062	0.068	0.078	0.062
	X_q	1.65	1.79	1.96	2.19	1.79
	X''_q	0.068	0.074	0.080	0.090	0.074
	X_2	0.063	0.068	0.075	0.083	0.068
	X_0	0.004	0.005	0.005	0.006	0.005
Time Constants:		T'_d 100 ms	T''_d 10 ms	T'_{do} 2865 ms		T_a 15 ms

* dB(A) levels are for guidance only

** With PMG Excited Option AVR12

APPENDIX I

ENVIRONMENT CANADA EMISSION FACTORS

http://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=DCD947AC-1

2.2.5
Case Study
Wood Products Operation

- version 06.7 -

March 21st 2007

Note: *New factors for PM, PM_{10} and $PM_{2.5}$ for some process sources (such as cyclones and baghouses) will be available by the end of April on Forest Products Association of Canada, FPAC's web site at: http://www.fpac.ca. The information contained in this case study will remain unchanged.*

Case Study – Wood Products Operation

Step 4c-1 – Collect Emission Factor Info 1/5

- Cyclones:

Equipment	TPM Factor
Chipper	0.000046 kg/tonne chips (dry basis)[1]
Green Trim Saws	9 mg/m^3 air flow[2]
Bark	0.000009 kg/tonne bark (dry basis)[1]
Dry Planer	78 mg/m^3 air flow[2]

- Emissions from cyclones handling green materials are much less than those handling dry materials

[1]Factor from NCASI Technical Bulletin 884.

[2]Factor from Evaluation of Wood-fired Boilers and Wide Bodied Cyclones in the State of Vermont, EPA Region 1. Improved factors are expected in the future.

APPENDIX J

START-UP AND COMMISSIONING PROTOCOL

ATTACHMENT 4

ACOUSTIC ASSESSMENT REPORT

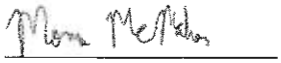
ACOUSTIC ASSESSMENT REPORT

ACME Othertown Composting Facility

Prepared for

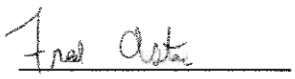
ACME Waste Inc.
5555 Country Lane
Othertown, ON

Prepared by



Momo McMahonm M.A.Sc.
Noise Specialist

Reviewed by



Fred Astare, B.A.Sc., P.Eng.
Noise Engineer

Distribution

2 Copies – Ministry of the Environment, EAAB, Toronto, Ontario
1 Copy – Ministry of the Environment District Office, Othertown, Ontario
2 Copies – ACME Waste Inc., Anytown, Ontario

March 15, 2010

Version Control

Rev.	Date	Revised Description	Reviewer Initials
1.0	March 15, 2010	Proposed – Original document for CofA Application	FSA

EXECUTIVE SUMMARY

P.E.S. Stacks Inc. (PES) was retained by ACME Waste Inc. (ACME) to prepare an Acoustic Assessment Report (AAR) in support of an application for a Certificate of Approval (CofA [Air & Noise]). The purpose of this AAR is to determine the noise and vibration impact from the operations of equipment at the ACME Othertown Composting facility (Facility) on the most sensitive points of reception in all critical directions in the vicinity of the Facility.

The Facility is located at 5555 Country Lane within the municipal boundaries of the Municipality of Othertown, Ontario. The Facility operates Monday to Friday 7:00 to 19:00 and Saturday 7:00 to 14:00, 312 days per year. Receiving hours are Monday to Friday 8:00 to 17:00 and Saturday 8:00 to 12:00. Operating equipment outside of these hours is limited to HVAC equipment, biofilter, and air supply blowers.

Noise sources of concern include on-site trucks, front-end loaders, a biofilter, HVAC units, a screener, a shredder, tub grinders, and air supply blowers.

Manufacturer's data and conservative estimates were used as inputs to a predictive acoustical model to quantify outdoor noise emissions associated with the Facility. Acoustic assessment criteria were established in accordance with sound level limits defined in MOE publication NPC 232.

One (1) location has been identified as being representative of the most sensitive point of reception (POR) in the vicinity of the Facility. This receptor location can be best defined as Class 3 rural, as per MOE Publication NPC-232. The Facility is not a significant source of vibration.

The noise analysis indicated that proposed sound emissions of the Facility exceeded applicable sound level limits during the predictable worst-case hour of operation. However, implementation of the mitigation measures proposed by P.E.S. will reduce offsite sound levels to below the MOE noise limits.

TABLE OF CONTENTS

EXECUTIVE SUMMARY II
TABLE OF CONTENTS III
ACOUSTIC ASSESSMENT REPORT CHECK-LIST V
1.0 INTRODUCTION 1
2.0 FACILITY DESCRIPTION 1
3.0 NOISE SOURCE SUMMARY 2
4.0 POINT-OF-RECEPTION SUMMARY 3
5.0 ASSESSMENT CRITERIA 3
6.0 IMPACT ASSESSMENT 4
7.0 PROPSED NOISE CONTROL MEASURES 5
8.0 CONCLUSIONS 5

List Of Tables

Table 1	Noise Source Summary Table
Table 2	Performance Limits Summary Table
Table 3	Point of Reception Noise Impact Table (Before Mitigation)
Table 4	Acoustic Assessment Summary Table (Before Mitigation)
Table 5	Barrier and Berm Description Table
Table 6	Point of Reception Noise Impact Table (After Mitigation)
Table 7	Acoustic Assessment Summary Table (After Mitigation)

List Of Figures

Figure 1	Scaled Area Location Plan
Figure 2	Site Layout Plan
Figure 3	Prediction Results Daytime Period (Before Mitigation)
Figure 4	Prediction Results Evening and Night-time Period (Before Mitigation)
Figure 5	Mitigation Measures (Barrier and Berm)
Figure 6	Prediction Results Daytime Period (After Mitigation)
Figure 7	Prediction Results Evening and Night-time Period (After Mitigation)

Appendices

Appendix A	Zoning Plan
Appendix B	Manufacturer's Data
Appendix C	Insignificant Noise Sources
Appendix D	Sample Calculations
Appendix E	Electronic Modelling Files

Ministry of the Environment | Ministère de l'Environnement

Ontario

ACOUSTIC ASSESSMENT REPORT CHECK-LIST

Company Name: Acme Waste Inc.

Company Address: 123 Anywhere St. Anytown, ON A1B 2C3

Location of Facility: 5555 Country Lane, Othertown, ON B2C 3D4

The attached Acoustic Assessment Report was prepared in accordance with the guidance in the ministry document "Information to be Submitted for Approval of Stationary Sources of Sound" (NPC 233) dated October 1995 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

Company Contact: Acme Waste Inc.

Name: Tony Bigshot

Title: Owner

Phone Number: (905) 555-1234

Signature: Tony Bigshot

Date: March 15, 2010

Technical Contact:

Name: Fred Astare, B.A.Sc., P.Eng

Representing: P.E.S. Stacks Inc.

Phone Number: (905) 555-2345

Signature: Fred Astare

Date: March 15, 2010

ACOUSTIC ASSESSMENT REPORT CHECKLIST

	Required Information		
		Submitted	Explanation/Reference
1.0	**Introduction** (Project Background and Overview)	☒ Yes	Section 1.0
2.0	**Facility Description**		
	2.1 Operating hours of facility and significant Noise Sources	☒ Yes	Section 2.0
	2.2 Site Plan identifying all significant Noise Sources	☒ Yes	Figure 2
3.0	**Noise Source Summary**		
	3.1 ***Noise Source Summary Table***	☒ Yes	Table 1
	3.2 Source noise emissions specifications	☒ Yes	Appendix B
	3.3 Source power/capacity ratings	☒ Yes	Appendix B
	3.4 Noise control equipment description and acoustical specifications	☐ Yes	NA
4.0	**Point of Reception Noise Impact Calculations**		
	4.1 ***Point of Reception Noise Impact Table***	☒ Yes	Table 3
	4.2 Point(s) of Reception (POR) list and description	☒ Yes	Section 4.0
	4.3 Land-use Zoning Plan	☒ Yes	Appendix A
	4.4 Scaled Area Location Plan	☒ Yes	Figure 1
	4.5 Procedure used to assess noise impacts at each POR	☒ Yes	Section 6.0
	4.6 List of parameters/assumptions used in calculations	☒ Yes	Appendix D
5.0	**Acoustic Assessment Summary**		
	5.1 ***Acoustic Assessment Summary Table***	☒ Yes	Table 4
	5.2 Rationale for selecting applicable noise guideline limits	☒ Yes	Section 5.0
	5.3 Predictable Worst Case Impacts Operating Scenario	☒ Yes	Section 3.0
6.0	**Conclusions**		
	6.1 Statement of compliance with the selected noise performance limits	☒ Yes	Section 7.0
7.0	**Appendices** (Provide details such as)	☒ Yes	
	Listing of Insignificant Noise Sources	☒ Yes	Appendix C
	Manufacture's Noise Specifications	☒ Yes	Appendix B
	Calculations	☒ Yes	Appendix D
	Instrumentation	☐ Yes	NA
	Meteorology during Sound Level Measurements	☐ Yes	NA
	Raw Data from Measurements	☐ Yes	NA
	Drawings (Facility / Equipment)	☒ Yes	Figures 1 to 7

1.0 INTRODUCTION

P.E.S. Stacks Inc. (PES) was retained by ACME Waste Inc. (ACME) to prepare an Acoustic Assessment Report (AAR) in support of an application for a Certificate of Approval (CofA [Air & Noise]). The ACME Othertown Composting facility (Facility) is located at 5555 Country Lane within the municipal boundaries of the Municipality of Othertown, Ontario. This report has been prepared in accordance with the applicable MOE publications (i.e., NPC-233, NPC-104 and NPC232).

The purpose of the assessment is to evaluate the overall noise emissions of the Facility with respect to MOE noise guidelines. The Facility is not a significant source of vibration and therefore there was no need for a vibration assessment.

A scaled area location plan showing the site with respect to the surrounding area is provided in Figure 1. A site layout plan, showing the Facility arrangement and source locations, is provided in Figure 2. A land use zoning designation plan is provided in Appendix A.

Noise sensitive point(s) of reception (POR(s)) were selected that are representative of all sensitive points of reception in all directions around the Facility. For the purpose of this assessment, one (1) location (a house) has been selected to represent the sensitive POR(s), labeled as POR1 in Figure 1. The closest POR is located approximately 520 m from the closest noise source (see Figure 1).

2.0 FACILITY DESCRIPTION

The Facility operates a source separated organics (SSO) and leaf and yard waste composting plant. SSO is delivered to the site where it is unloaded inside the main building, while unloading inside the main building the bay doors are kept closed. The SSO is put through a composting tunnel for 28 days. Eight (8) air supply blowers alternately force air into the compost mass.

The SSO is loaded into the composting tunnel using a front-end loader and works its way through the compost tunnel on an automated turner moving the material through the system and discharges the material at the completion of the cycle. At the completion of the cycle the material is moved to the curing piles with a front-end loader.

Leaf and yard waste is received at the Facility in the leaf and yard receiving/preprocessing area. The leaf and yard waste is chipped, grinded and screened before being placed in windrows with a front-end loader.

Once the SSO and leaf and yard waste is composted and cured it is screened and then shipped off-site.

The Facility operates Monday to Friday 7:00 to 19:00 and Saturday 7:00 to 14:00, 312 days per year. Receiving hours are Monday to Friday 8:00 to 17:00 and Saturday 8:00 to 12:00. Operating equipment outside of these hours is limited to HVAC equipment, biofilter, and air supply blowers.

The compost building is of solid concrete construction with no openings. No architectural or mechanical drawing were available that could be included in this AAR. A utility building, that houses the air supply blowers, is also a solid concrete construction with openings for the eight (8) propeller fans. The Facility is located north of Country Lane and the major roads in the area include Country Lane and Highway 2. The Facility is located in an area zoned for Disposal Industrial and is surrounded on all sides by land zoned agricultural. Land to the north, east, and west of the site is zoned Restricted Agricultural and the land south of the site is zoned General Agricultural. A zoning plan is provided in Appendix A.

3.0 NOISE SOURCE SUMMARY

In preparing the assessment, every reasonable effort was taken by PES to ensure that the source numbering convention was consistent with the information submitted by ACME, to the MOE, as part of the documentation provided in the Emission Summary and Dispersion Modelling Report (ESDM). The primary noise sources of concern are summarized in Table 1 and include the following:

- Up to two (2) SSO or leaf and yard waste delivery trucks that could enter and exit the site in a given hour (i.e. up to 4 movements);
- Up to one (1) truck that could enter and exit the site in a given hour to remove finished compost (i.e. up to 2 movements)
- One (1) water truck could operate at the site in a given hour (i.e. up to 2 movements)
- Up to two (2) front-end loaders operating
- One (1) generator
- One (1) tub grinder
- One (1) shredder
- One (1) compost-screening machine

All of the trucks were modelled as line sources representative of their respective movements on site. The maximum speed each vehicle can travel is limited to the posted

Facility speed limit of 10 km/hr (for trucks) or 5 km/hr (for water truck). The sources are located outdoors and have the potential to be considered significant noise sources.

All of the trucks and front-end loaders are equipped with manufactured installed mufflers of average quality. The generator is equipped with a manufactured installed muffler of average quality and an acoustical/weather enclosure. Testing and maintenance on the generator will only be completed during daytime hours according to the manufacturer's recommendations.

The locations of the significant noise sources can be found in Figure 2. Based on PES's experience, and the available sources' sound power and sound pressure levels throughout octave bands, there are three tonal noise sources at the Facility as identified on Table 1. There are no impulse noise sources located at the Facility.

There are a number of insignificant sources at the Facility as listed in Appendix C. The air supply blowers are located on the east side of the utility building and are shielded from the POR. Due to the shielding effects of the utility building and the enclosed channel compost operations building the air supply blowers are insignificant noise sources.

4.0 POINT-OF-RECEPTION SUMMARY

Only one POR has been identified as being representative of the most sensitive POR in the vicinity of the Facility. As per MOE noise guidelines "Point of Reception" means any point on the premises of a person where sound or vibration originating from other than those premises is received. For the purpose of an AAR the points with "the predictable worst case noise impacts" must be considered. The chosen POR1 is a two (2)-storey house. The POR 1 is located on the north side of Country Lane, west of the Facility, approximately 520 m from the closest noise source. Its exact location is shown on Figure 1. The most sensitive location of reception at this POR is the top floor of the building at a height of 4.5 m.

Acoustical modelling was performed within 30 m of the building façade to determine the most impacted point at the POR (per NPC 232). Acoustical modelling verified that the top floor of the residence was the location that resulted in the highest noise impact from the Facility.

Actual source to receptor separation distances are provided in Table 3 and shown in Figure 1.

5.0 ASSESSMENT CRITERIA

The ACME Facility is located in Othertown, Ontario. The subject area is defined as Class 3 rural, as per MOE Publication NPC-232. The publication describes a Class 3 Area as "a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic.

As the operations differ between the day, evening, and night time periods, the predicted worst-case noise impacts at the POR due to the Facility operations have been compared to the applicable sound level limits for the day, evening, and night time periods as prescribed in the MOE publication NPC-232. Table 2 summarizes the One Hour Equivalent Sound Level (L_{eq}), for a POR in a Class 3 area.

6.0 IMPACT ASSESSMENT

Manufacturer's noise data, noise estimations using general acoustical formulas from literature, such as Hoover and Keith Inc. "*Noise Control for Building and Manufacturing Plants"*, and P.E.S.'s extensive noise library were used for all significant noise sources. The manufacturer's noise data is summarized in Appendix B. The noise source sound power levels are summarized in Table 1.

The noise data was used as inputs for sound level prediction calculations at the identified receptor. The calculations were performed using prediction software consistent with the ISO 9613-2 standard. The model took into consideration that the layout of the Facility and the location of the various sources allow the building to provide shielding to the POR from some of the significant noise sources. As described in ISO 9613-2, ground factor values that represent the effect of ground adsorption on sound levels range between 0 and 1. Based on the specific site conditions, the ground factor values used in the modelling were a ground factor value of 0 for acoustically hard surfaces, such as the asphalt pads, and a ground factor value of 1 for acoustically soft surfaces, such as farmland.

The predicted sound levels at POR1 due to each noise source are summarized in Table 3. The table also includes the distance from each source to the identified POR1. Sample calculations are provided in Appendix D. Predicted sound level contours (before mitigation) are shown in Figure 3 (daytime period) and Figure 4 (evening and night-time periods). The electronic modelling files are provided in Appendix E for exclusive use and review by the MOE. The Facility's expected noise impacts at the POR is summarized in Table 4.

7.0 PROPOSED NOISE CONTROL MEASURES

Based on the results presented in Table 4, the implementation of noise control measures will be required to ensure compliance with MOE noise guidelines. An option to adhere includes the implementation of a barrier and berm to mitigate the effects of the significant noise sources. Table 5 summarizes the construction requirements of the barrier and the berm. Figure 5 indicates the location of all proposed noise control measures.

Table 6 summarizes the predicted sound pressure levels at the POR with the implementation of the recommended noise control measures. Predicted sound level contours with the recommended noise control measures in place are shown in Figure 6 (daytime period) and Figure 7 (evening and night-time periods).

Table 7 provides a summary of the overall predicted noise levels at the identified POR. With the implementation of the proposed noise control measures the predicted sound levels at the identified POR are at or below the performance limits.

8.0 CONCLUSIONS

PES was retained by ACME Waste Inc. to prepare an Acoustic Assessment Report for their Facility located at 5555 Country Lane within the municipal boundaries of the Municipality of Othertown, Ontario. It was determined that the applicable sound levels (performance limits) were exceeded by up to 10 dBA for the existing operations. With the implementation of recommended noise control measures specified in Section 7.0 the predicted Facility noise impact at the identified POR will be in compliance with applicable sound levels for day-time period. During evening and night-time periods, when only insignificant noise sources operate, the expected Facility noise impacts at the POR1 location, should be well below applicable sound levels.

The required mitigation for the Facility to be in compliance with NPC-232 is relatively simple. Therefore PES found that a detailed Noise Abatement Action Plan is not necessary. However, ACME accepts the obligation to implement the proposed noise control measures within 3 months after the date of issue of the C of A.

References

Ontario Ministry of the Environment, Publication NPC-233: *Information to be Submitted for Approval of Stationary Sources of Sound*, October 1995.

Ontario Ministry of the Environment, Publication NPC-232: *Sound Level Limits for Stationary Sources in Class 3 Areas (Rural),* October 1995.

Environment Assessment and Approvals Branch. *Basic Comprehensive Certificates of Approval (Air) User Guide Version 2.0*. Ontario Ministry of the Environment. April 2004

Ontario Ministry of the Environment, *Model Municipal Noise Control By-Law Publication NPC-104*, August 1978.

ISO 9613-2. *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation*. December 1996.

Prediction software implementing ISO-9613

ACME Waste Inc. Design and Operations Report, November 2008.

Table 1

Noise Source Summary
Acme Waste Inc. Othertown Compost Facility
Othertown, Ontario

Source ID	*Source Description*	*Sound Power Level (dBA)*	*Source Location (1)*	*Sound Characteristics (1)*	*Existing Noise Control Measures (1)*	*Required Noise Control Measures (1)*
S10	Water Truck	106.3	O	S	S	B
S11	SSO and Leaf and Yard Waste Trucks	106.3	O	S	S	B
S12	Finished Compost Trucks	106.3	O	S	S	B
S13	Front-End Loader for Finished Compost	106.0	O	S	S	B
S14	Front-End Loader for Active Windrows	106.0	O	S	S	B
S2	Diesel Generator	102.0	O	T	E,S	B
S3B	Tub Grinder	122.0	O	T	U	B
S7	Screener	108.8	O	S	U	B
S8	Shredder	114.6	O	T	U	B

Notes:

(1) See below for nomenclature

Sound Power Level (PWL) refers to the existing PWL prior to mitigation described in Section 7.0, but accounts for existing, if any, noise control measures already implemented

Source Location:
- O - located/installed outside of building, including roof
- I - located/installed inside of building

Sound Characteristics:
- S - Steady
- Q - Quasi Steady Impulsive
- I - Impulsive
- B - Buzzing
- T - Tonal
- C - Cyclic

Existing Noise Control Measures:
- S - silencer, acoustic louvre, muffler
- A - acoustic lining, plenum
- B - barrier, berm, screening (does not include shielding provided by any obstacles, such as the facility building)
- L - lagging
- E - acoustic enclosure
- O - other
- U - uncontrolled

Required Mitigation
- S - silencer, acoustic louvre, muffler
- A - acoustic lining, plenum
- B - barrier, berm, screening
- L - lagging
- E - acoustic enclosure
- O - other
- U - uncontrolled

Table 2

Performance Limits Summary
Acme Waste Inc. Othertown Compost Facility
Othertown, Ontario

Point of Reception ID	MOE Designation	Performance Limits		
		Day-time	Evening	Night
POR1	Class 3	45	40	40

Table 3

Point-of-Reception Noise Impact (Before Mitigation)
Acme Waste Inc. Othertown Compost Facility
Othertown, Ontario

Source ID	*Significant Noise Source Description*	*Distance (m)*	*POR1 Sound Level (dBA)*		
			Day	*Evening*	*Night*
S10	Water Truck	623	25.8	NA	NA
S11	SSO and Leaf and Yard Waste Trucks	528	31.8	NA	NA
S12	Finished Compost Trucks	529	27.6	NA	NA
S13	Front-End Loader for Finished Compost	588	40.4	NA	NA
S14	Front-End Loader for Active Windrows	699	31.5	NA	NA
S2	Diesel Generator	628	34.0	NA	NA
S3B	Tub Grinder	623	52.8	NA	NA
S7	Screener	622	48.0	NA	NA
S8	Shredder	620	46.6	NA	NA

NA - Source only operates during the daytime hours

Table 4

Acoustic Assessment Summary (Before Mitigation)
Acme Waste Inc. Othertown Compost Facility
Anytown, Ontario

Point-of-Reception ID	*Point of Reception Description*	*Time of Day*	*Sound Level at Point of Reception (Leq)*	*Verified by Acoustic Audit (Yes/No)*	*Performance Limit (Leq)*	*Compliance with Performance Limit (Yes/No)*
POR1	Residential	Day	55.0 dBA	No	45 dBA	No
		Evening	-	No	40 dBA	Yes
		Night	-	No	40 dBA	Yes

Table 5

Barrier Description
Acme Waste Inc. Othertown Compost Facility
Anytown, Ontario

Mitigation ID	Location	Construction Requirements	Approximate Height (m)	Approximate Length (m)	Distance From Source (m)
BR-1	As shown on Figure 5	Minimum Surface Density = 20 kg/m^2 Continuous surface without any gaps	6	100	12 (From S3b)
BERM-1	As shown on Figure 5	Continuous surface without any gaps	5.5	130	100 (From S2)

Table 6

Point-of-Reception Noise Impact (After Mitigation)
Acme Waste Inc. Othertown Compost Facility
Othertown, Ontario

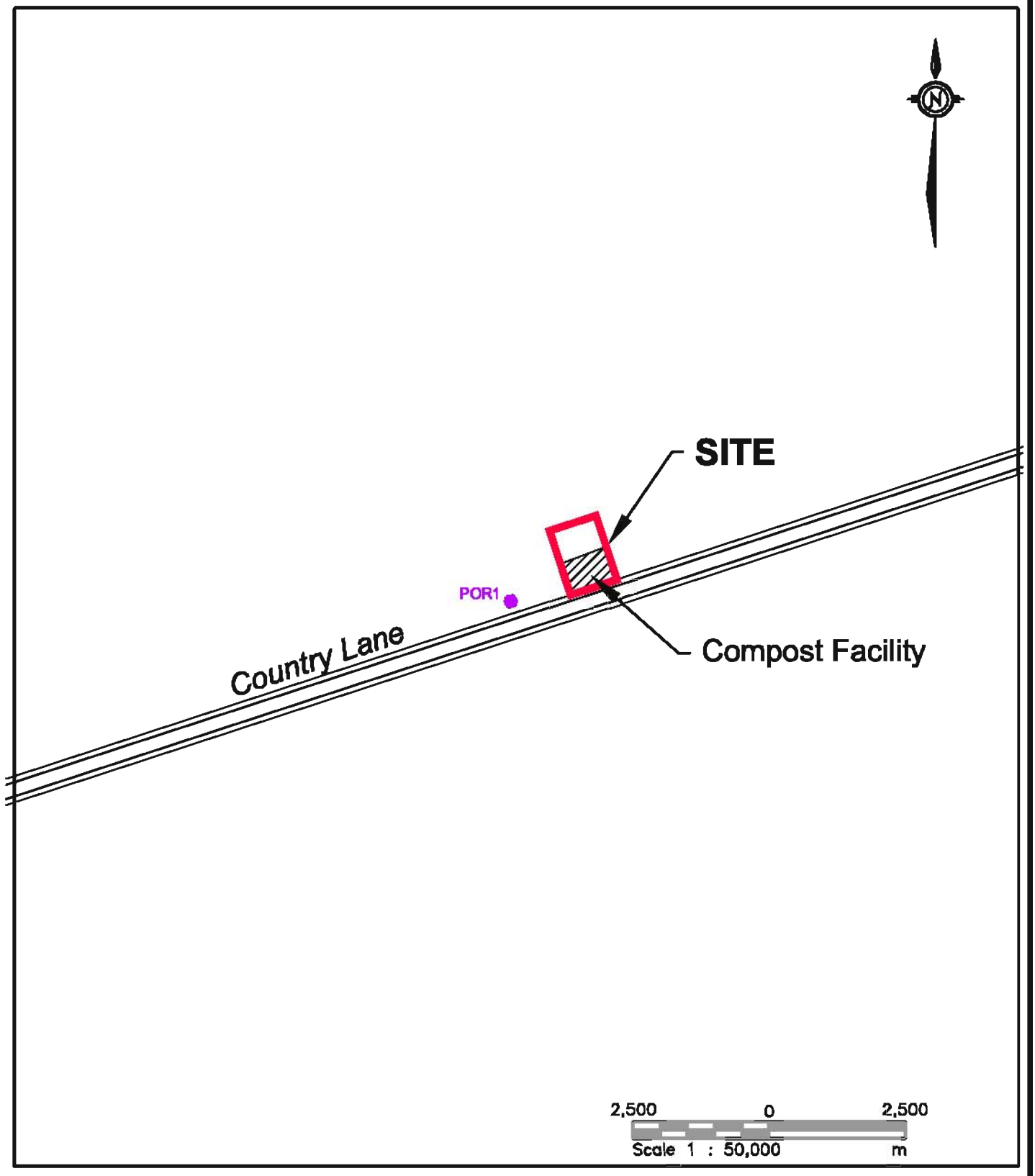
Source ID	*Significant Noise Source Description*	*Distance (m)*	*POR1 Sound Level (dBA)*		
			Day	*Evening*	*Night*
S10	Water Truck	623	23.3	NA	NA
S11	SSO and Leaf and Yard Waste Trucks	528	27.0	NA	NA
S12	Finished Compost Trucks	529	22.7	NA	NA
S13	Front-End Loader for Finished Compost	588	34.8	NA	NA
S14	Front-End Loader for Active Windrows	699	30.5	NA	NA
S2	Diesel Generator	628	27.9	NA	NA
S3B	Tub Grinder	623	39.6	NA	NA
S7	Screener	622	40.3	NA	NA
S8	Shredder	620	36.6	NA	NA

Note
NA - Source only operates during the daytime hours

Table 7

Acoustic Assessment Summary (After Mitigation)
Acme Waste Inc. Othertown Compost Facility
Anytown, Ontario

Point-of-Reception ID	*Point of Reception Description*	*Time of Day*	*Sound Level at Point of Reception (Leq)*	*Verified by Acoustic Audit (Yes/No)*	*Performance Limit (Leq)*	*Compliance with Performance Limit (Yes/No)*
POR1	Residential	Day	44.8 dBA	No	45 dBA	Yes
		Evening	-	No	40 dBA	Yes
		Night	-	No	40 dBA	Yes



LEGEND

- POR1 — NOISE RECEPTOR
- ROAD
- PROPERTY BOUNDARY

PROJECT

ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

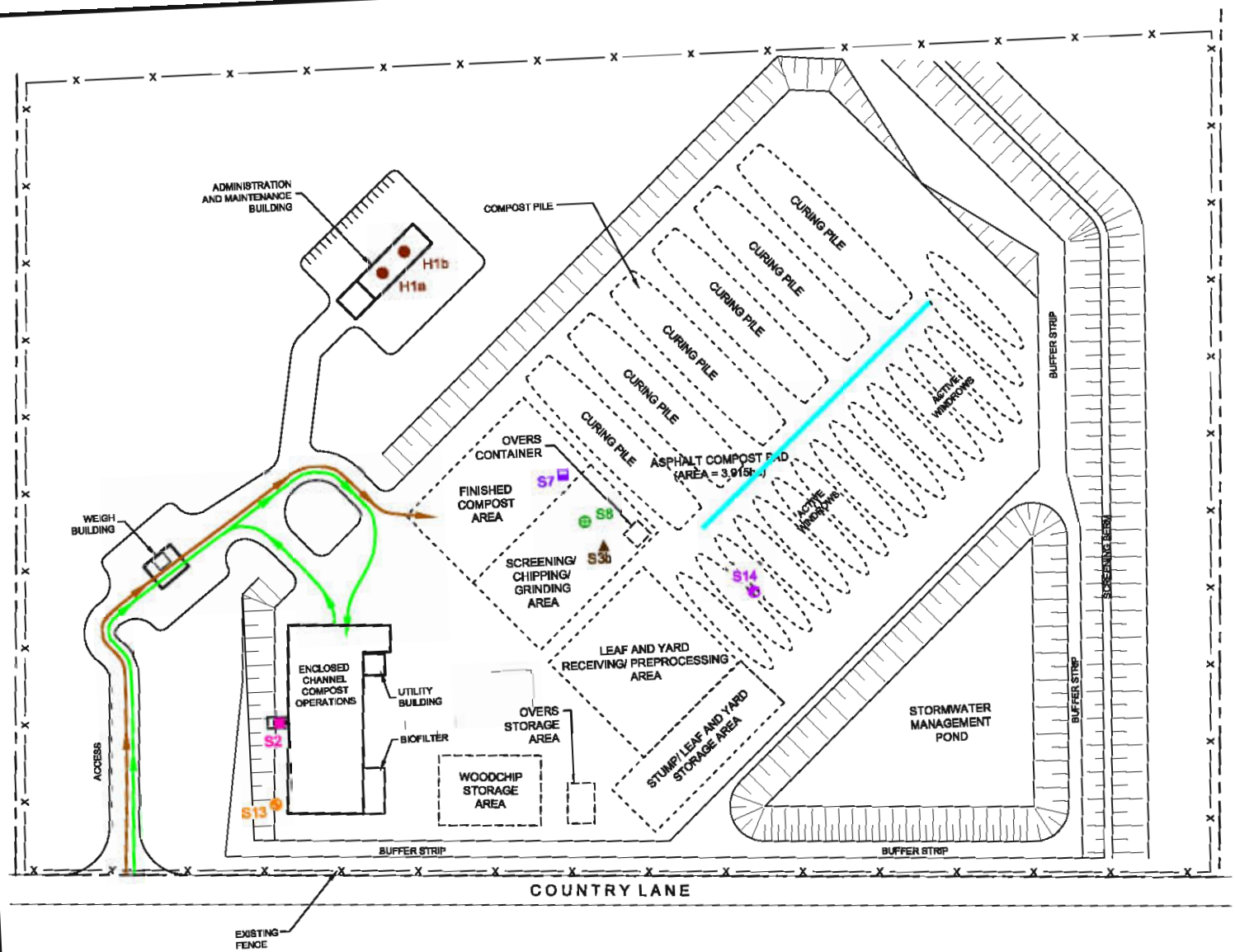
SCALED AREA LOCATION PLAN

STACKS P.E.S. Inc.

PROJECT No.	53469-02		FILE No.	(004)SN-WA001
DESIGN	JC	FEB.1/2010	SCALE AS SHOWN	REV.
CADD	BYO	FEB.10/2010		
CHECK	TB	FEB.10/2010		
REVIEW	TB	FEB.10/2010		

FIGURE 1

53469-02(004)SN-WA001 FEB 10/2010



LEGEND

- PROPERTY BOUNDARY
- FENCE LINE / SITE BOUNDARY
- ROAD
- WATER TRUCK FOR ACTIVE WINDROWS
- SHIPPING TRUCK TO FINISHED COMPOST
- SHIPPING TRUCK TO LEAF & YARD WASTE
- H1 HVAC STACK
- S2 GENERATOR
- S3b TUB GRINDER
- S7 SCREENER
- S8 SHREDDER
- S14 FRONT-END LOADER - ACTIVE WINDROW
- S13 FRONT-END LOADER - FINISHED COMPOST

42.5 0 42.5 m

Scale 1 : 1500

REV	BY	DES	REVISION DESCRIPTION	CHKD	CHK	RVP

PROJECT

ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

SITE LAYOUT PLAN

PROJECT No.	53466-03	FILE No.	(004)ON-WAOO3		
DESIGN	JC	FEB.1/2010	SCALE	AS SHOWN	REV.
CADD	SYD	FEB.10/2010			
CHECK	TB	FEB.10/2010			
REVIEW	TB	FEB.10/2010			

S.R.L.S. P.E.S. Inc.

FIGURE 2

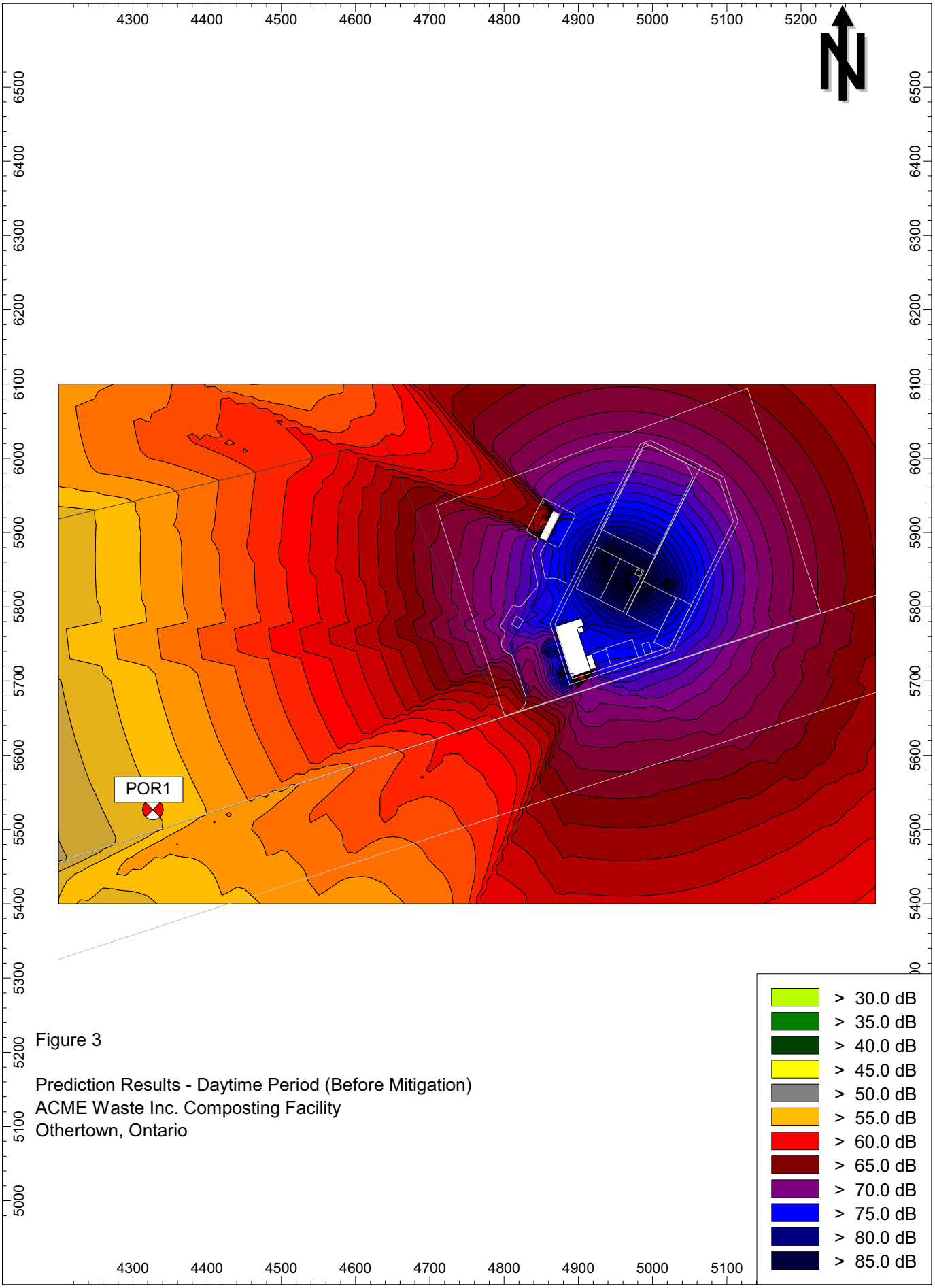


Figure 3

Prediction Results - Daytime Period (Before Mitigation)
ACME Waste Inc. Composting Facility
Othertown, Ontario

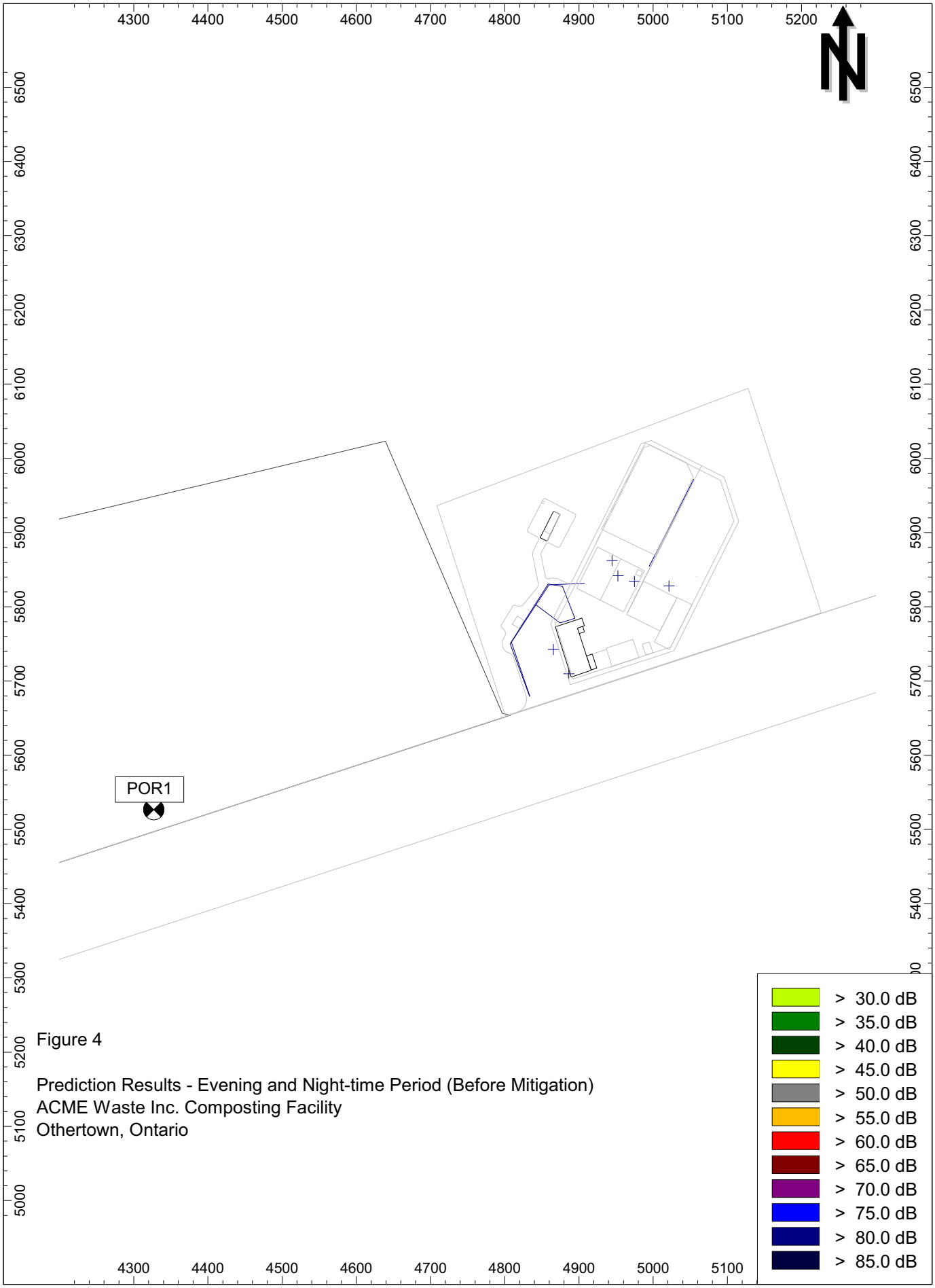
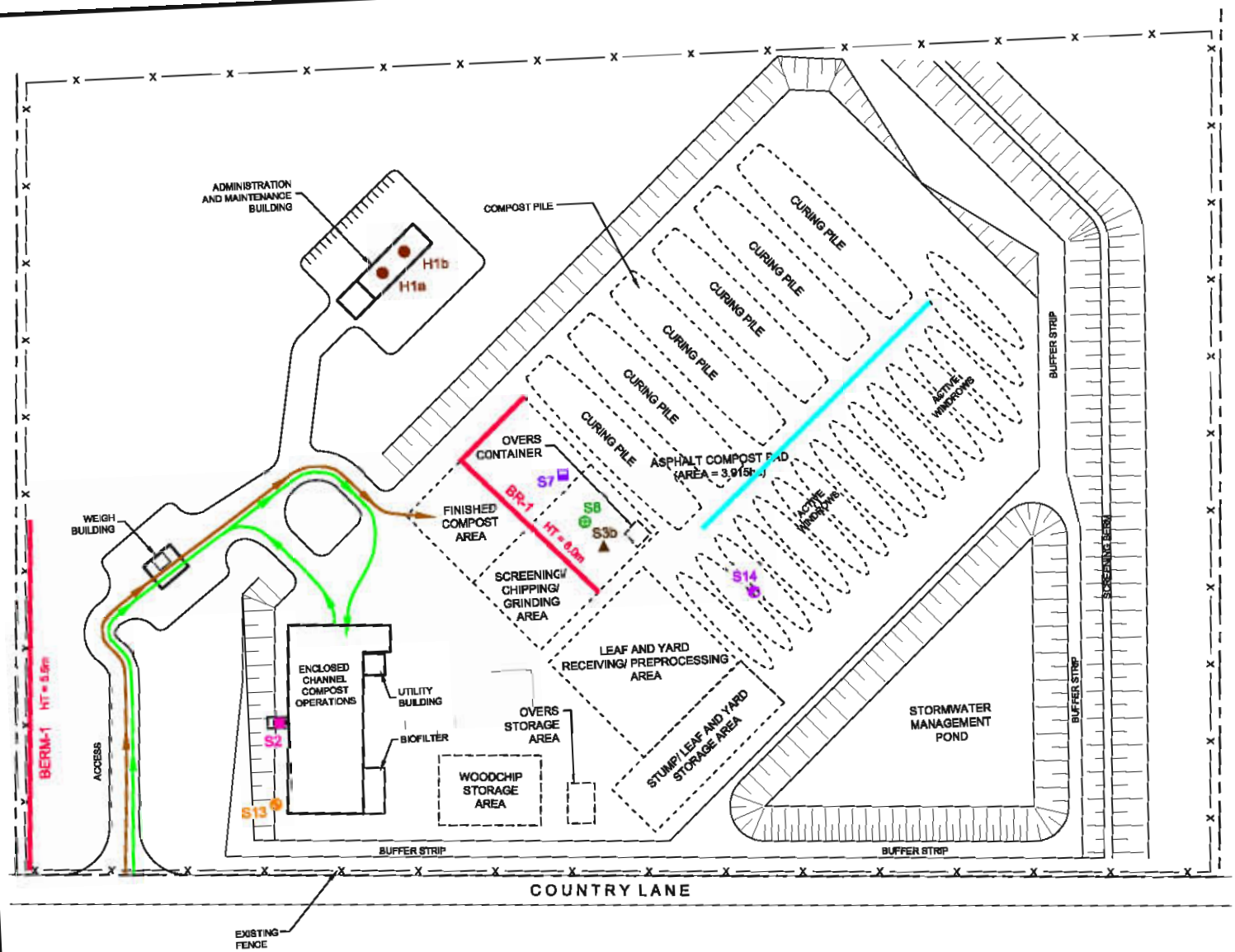


Figure 4

Prediction Results - Evening and Night-time Period (Before Mitigation)
ACME Waste Inc. Composting Facility
Othertown, Ontario



LEGEND

- PROPERTY BOUNDARY
- FENCE LINE / SITE BOUNDARY
- ROAD
- WATER TRUCK FOR ACTIVE WINDROWS
- SHIPPING TRUCK TO FINISHED COMPOST
- SHIPPING TRUCK TO LEAF & YARD WASTE
- H1 HVAC STACK
- S2 GENERATOR
- S3b TUB GRINDER
- S7 SCREENER
- S8 SHREDDER
- S14 FRONT-END LOADER - ACTIVE WINDROW
- S13 FRONT-END LOADER - FINISHED COMPOST
- BR-1 NOISE MITIGATION BARRIER (LENGTH = 100m)
- BERM-1 NOISE MITIGATION BERM (LENGTH = 130m)

42.5 0 42.5 m

Scale 1 : 1500

REV	BY/C	DES	REVISION DESCRIPTION	CADD	CHK	RVF

PROJECT
ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE
MITIGATION MEASURES

S.E.S. P.E.S. Inc.

PROJECT No.	53486-03	FILE No.	(004)MM-MM004	
DESIGN	JC	FEB.1/2010	SCALE AS SHOWN	REV.
CADD	SVD	FEB.10/2010		
CHECK	TB	FEB.10/2010		
REVIEW	TB	FEB.10/2010		

FIGURE 5

G:\work\53\04\03\MM-MM004 FEB 10/2010

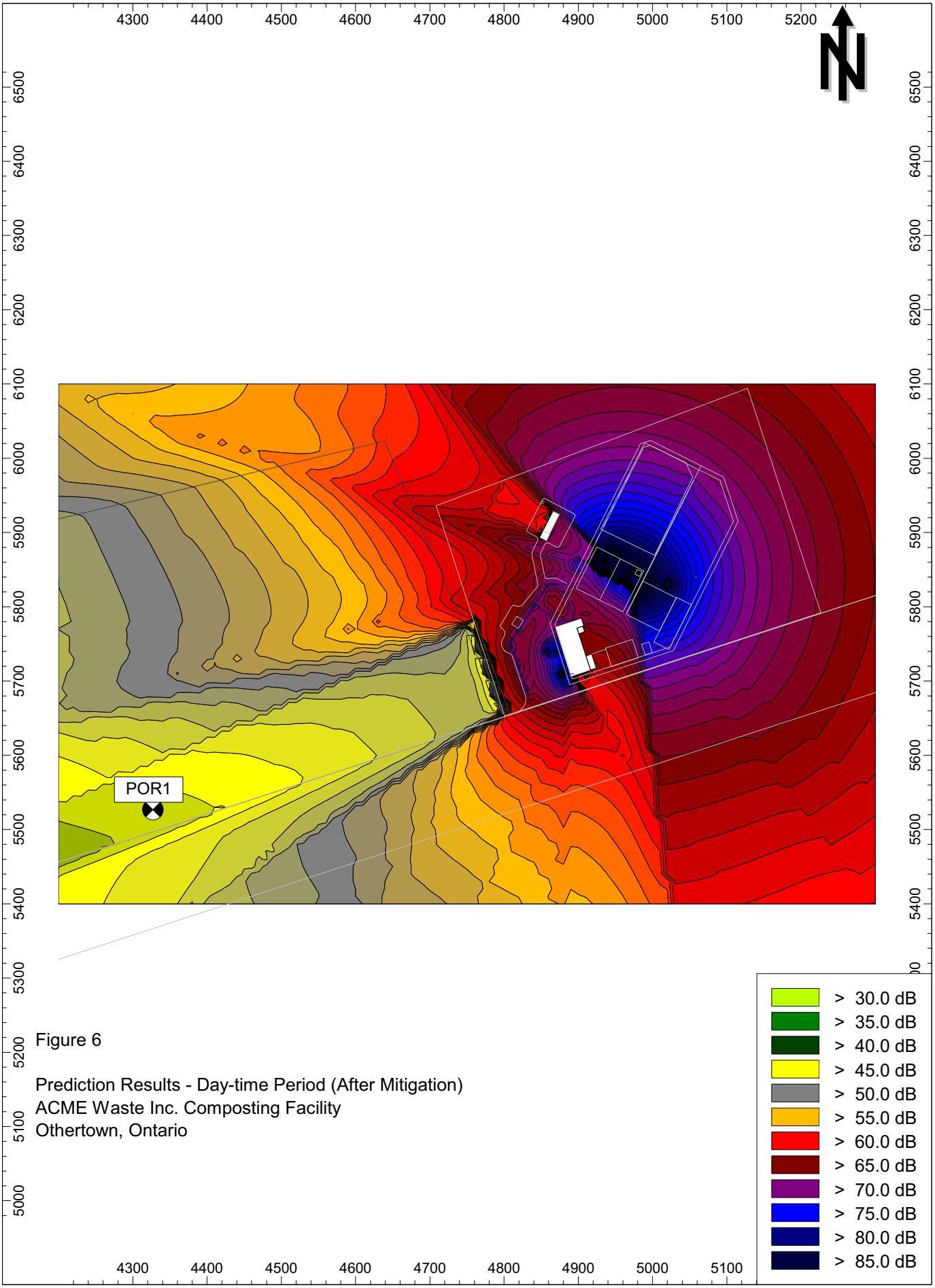


Figure 6

Prediction Results - Day-time Period (After Mitigation)
ACME Waste Inc. Composting Facility
Othertown, Ontario

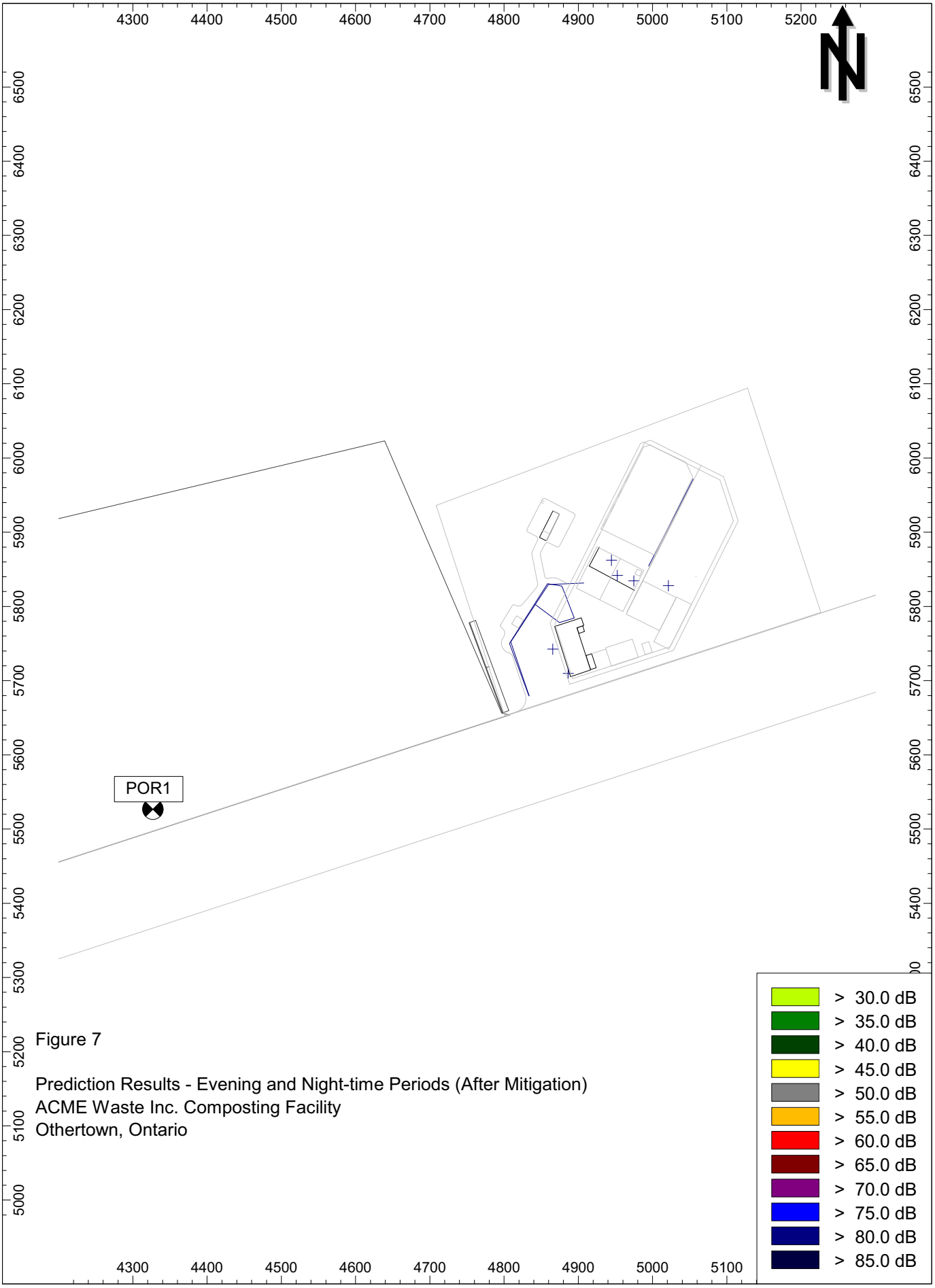
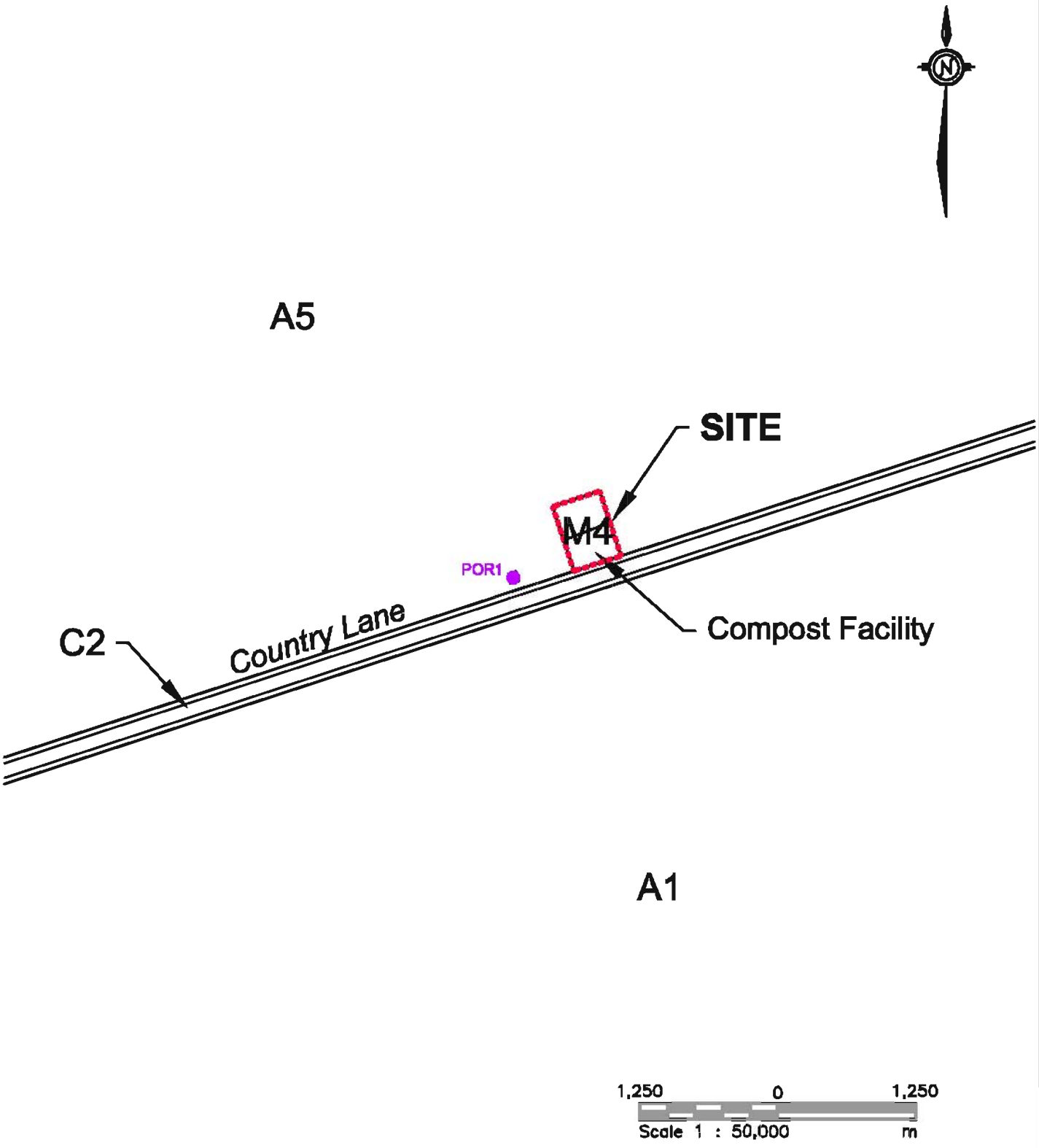


Figure 7

Prediction Results - Evening and Night-time Periods (After Mitigation)
ACME Waste Inc. Composting Facility
Othertown, Ontario

APPENDIX A

Zoning Plan



1,250 0 1,250

Scale 1 : 50,000 m

LEGEND

A1	AGRICULTURAL
A5	RESTRICTED AGRICULTURAL
C2	HIGHWAY COMMERCIAL
M4	DISPOSAL INDUSTRIAL
POR1	NOISE RECEPTOR

PROJECT

ACME Othertown Composting Facility
5555 Country Lane
Othertown, Ontario

TITLE

ZONING PLAN

STACKS P.E.S. Inc.

PROJECT No.	53468-02	FILE No.	(004)GN-WA003	
DESIGN	JC	FEB.1/2010	SCALE AS SHOWN	REV.
CADD	BYO	FEB.10/2010		
CHECK	TB	FEB.10/2010		
REVIEW	TB	FEB.10/2010		

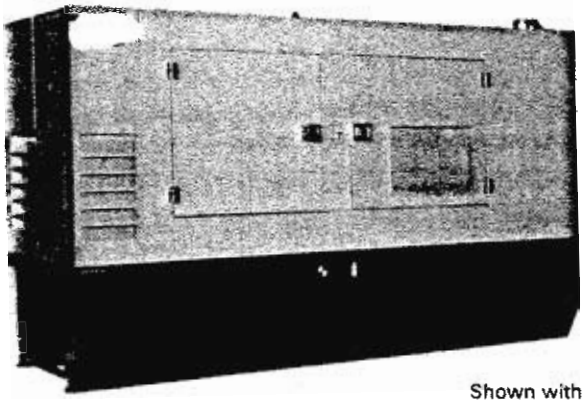
FIGURE A.1

53468-02(004)GN-WA003 FEB 10/2010

APPENDIX B

Manufacturer's Data

52



Shown with Optional Equipment

CAE – SOUND ATTENUATED WEATHERPROOF ENCLOSURES

These fully weatherproof, sound attenuated, factory installed, enclosures incorporate internally mounted exhaust silencers that reduce engine noise by –25 dbA and fabricated steel skidbase. Optional UL listed tanks are available.
These enclosures are of extremely rugged construction to withstand outdoor exposure and rough handling common on many construction sites. They are designed on modular principles with many interchangeable components permitting on-site repair.

FEATURES

HIGHLY CORROSION RESISTANT CONSTRUCTION

- Stainless steel flush fitting latches and hinges tested and proven to withstand extreme conditions of corrosion
- Zinc plated or stainless steel fasteners
- Body made from steel components treated with polyester powder coating

EXCELLENT ACCESS FOR MAINTENANCE

- Full length extra wide doors on each side
- Doors top hung and supported by gas struts
- Radiator fill access
- Lube oil and cooling water drains piped to exterior of the enclosure skidbase

SECURITY AND SAFETY

- Lockable access doors
- Stub-up cover sheets for "rodent proofing"
- Cooling fan and battery charging alternator fully guarded
- Fuel fill and battery can only be reached via lockable access doors (only provided when optional fuel tank is ordered)
- Exhaust silencing system totally enclosed for operator safety

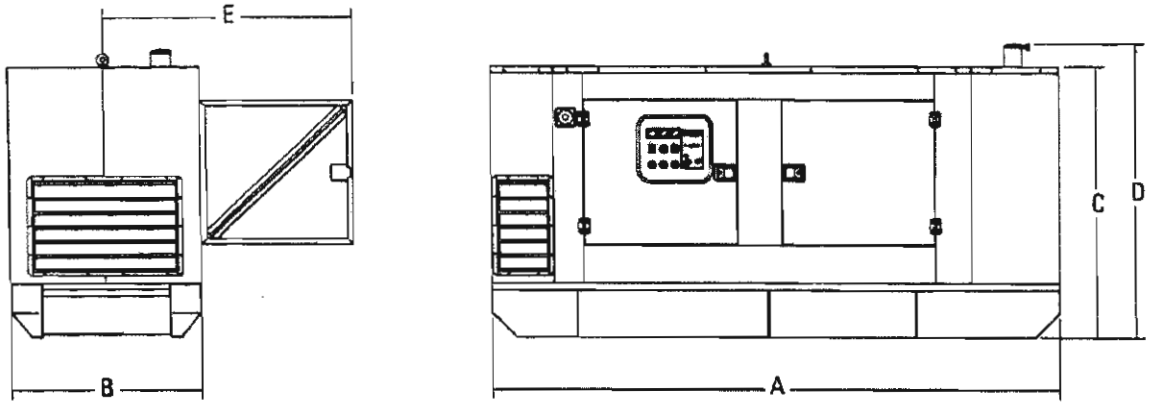
TRANSPORTABILITY

- Lifting points on baseframe
- Tested and certified single point lifting facility

OPTIONS

- FTP Integral welded fuel tank
- Control panel viewing window
- Emergency stop push button (red) mounted flush on exterior enclosure wall

ENCLOSURES

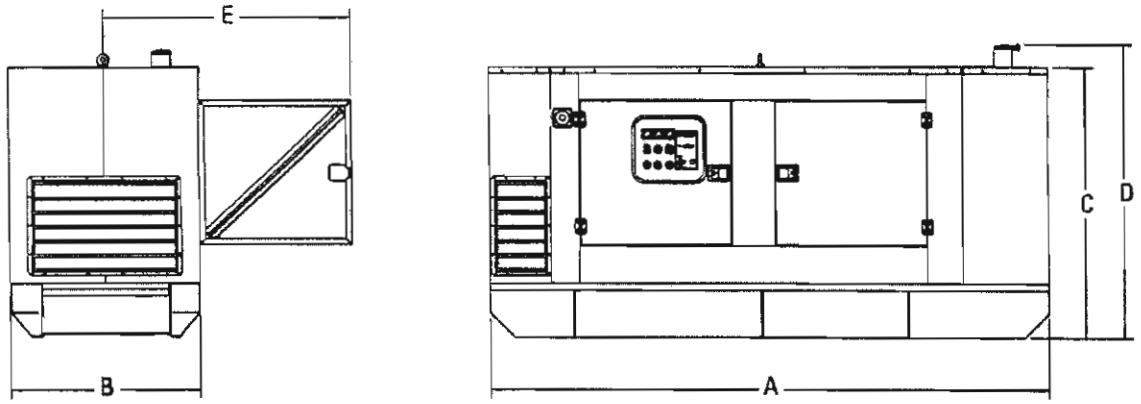


FSK SKIDBASE WITH CAE SOUND ATTENUATED ENCLOSURE GENERATOR WEIGHTS AND DIMENSIONS

Generator Set Model	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E* mm (in)	Weight kg (lb)
D125-6	3900 (153.5)	1304 (51.3)	1877 (73.9)	2027 (79.8)	1700 (66.9)	2518 (5,551)
D150-8	3900 (153.5)	1304 (51.3)	1877 (73.9)	2027 (79.8)	1700 (66.9)	2593 (5,617)
D175-2	3900 (153.5)	1304 (51.3)	1877 (73.9)	2027 (79.8)	1700 (66.9)	2611 (5,756)

*Clearance required both sides.
Weight with lube oil, no coolant.

ENCLOSURES



12 HR UL WITH CAE SOUND ATTENUATED ENCLOSURE GENERATOR WEIGHTS AND DIMENSIONS

Generator Set Model	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E* mm (in)	Fuel Capacity L (US gal)	Weight kg (lb)
D125-6	3900 (153.5)	1304 (51.3)	1942 (76.4)	2092 (82.3)	1700 (66.9)	592 (156)	2805 (6,184)
D150-8	3900 (153.5)	1304 (51.3)	1942 (76.4)	2092 (82.3)	1700 (66.9)	592 (156)	2880 (6,349)
D175-2	3900 (153.5)	1304 (51.3)	1942 (76.4)	2092 (82.3)	1700 (66.9)	592 (156)	2898 (6,389)

*Clearance required both sides.
Weight with lube oil, no coolant, no fuel.

ENCLOSURES

SOUND LEVELS

Generator Set Model	1800 rpm (60 Hz)					
	15 m (50 ft)		7 m (23 ft)		1 m (3 ft)	
	No Load (dBA)	Full Load* (dBA)	No Load (dBA)	Full Load* (dBA)	No Load (dBA)	Full Load* (dBA)
D125-6	63.8	65.7	69.8	71.7	82.1	83.2
D150-8	63.9	66.3	69.9	72.3	82.1	83.5
D175-2	68.9	69.3	74.9	75.3	85.0	85.9

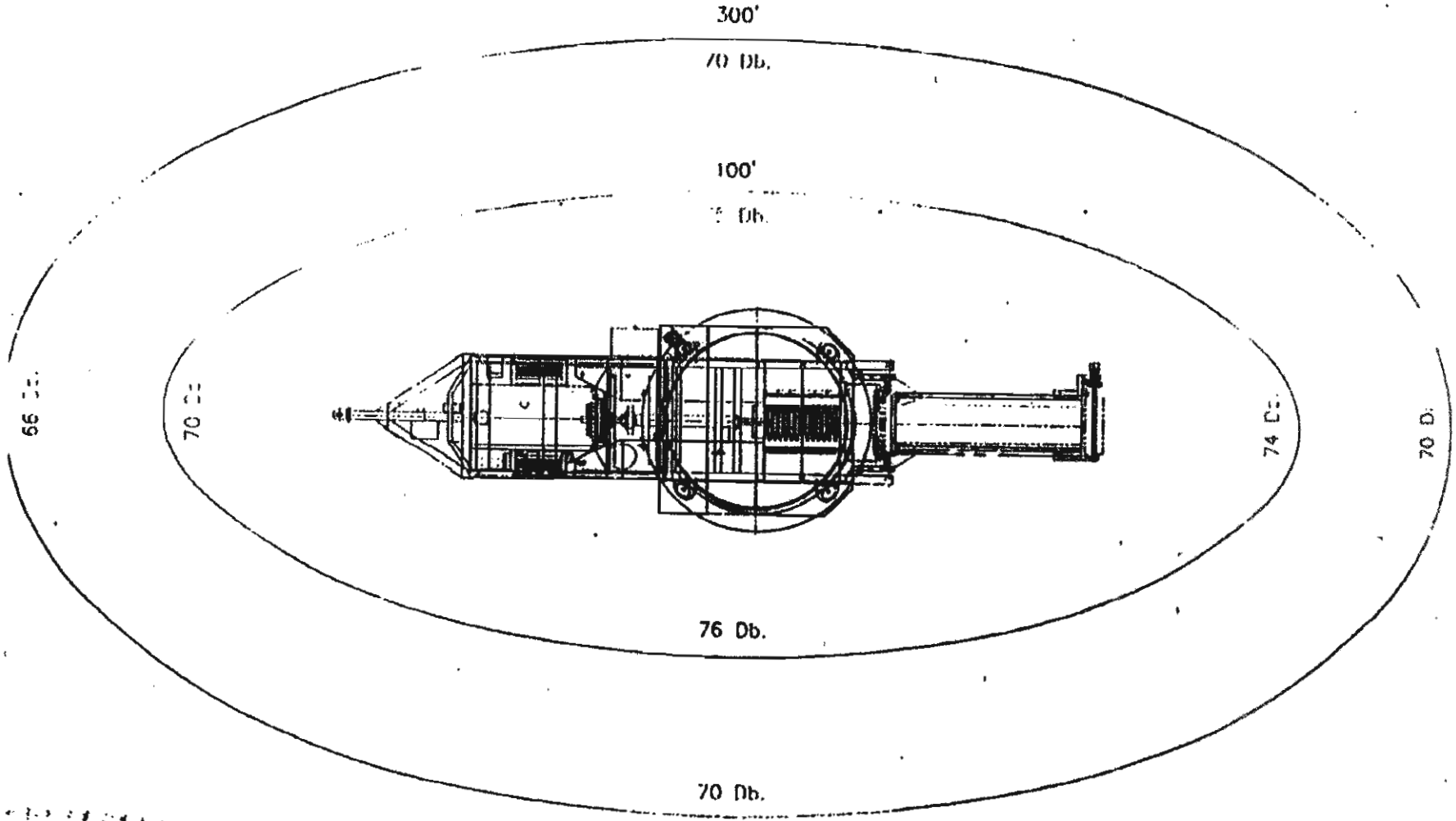
*Noise levels tested at prime ratings.

Information contained in this publication may be considered confidential.
Discretion is recommended when distributing.
Materials and specifications are subject to change without notice.
CAT, CATERPILLAR, their respective logos, "Caterpillar Yellow" and the POWER EDGE trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

© 2008 Caterpillar
All Rights Reserved.
Printed in U.S.A.

53

Model 950 Tub Grinder
Engine 116-HP
Decibel Readings Taken 5/5/97



S7

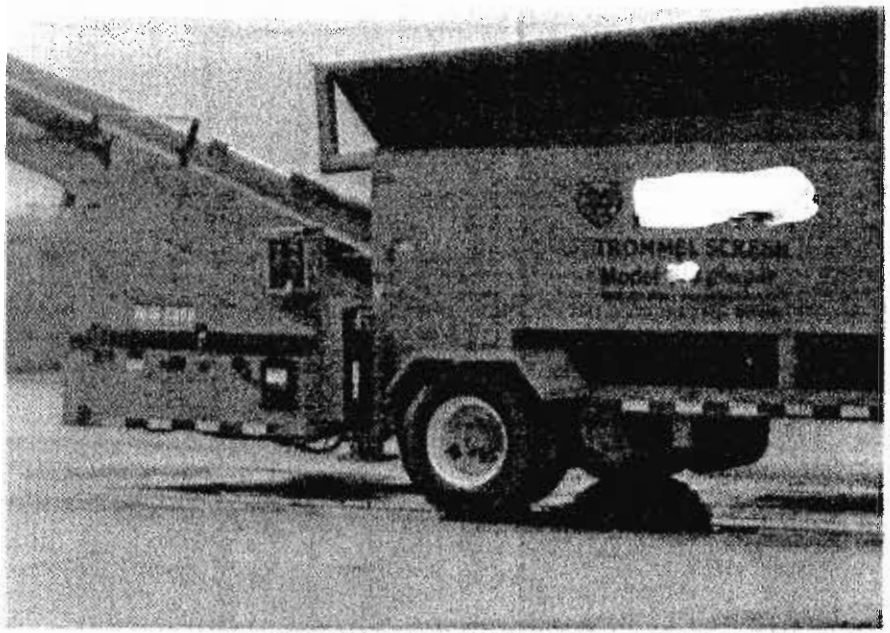
COMPLIANCE WITH EXTERIOR NOISE LIMITS
ISO3744:1994(E)
INFORMATION TO BE REPORTED

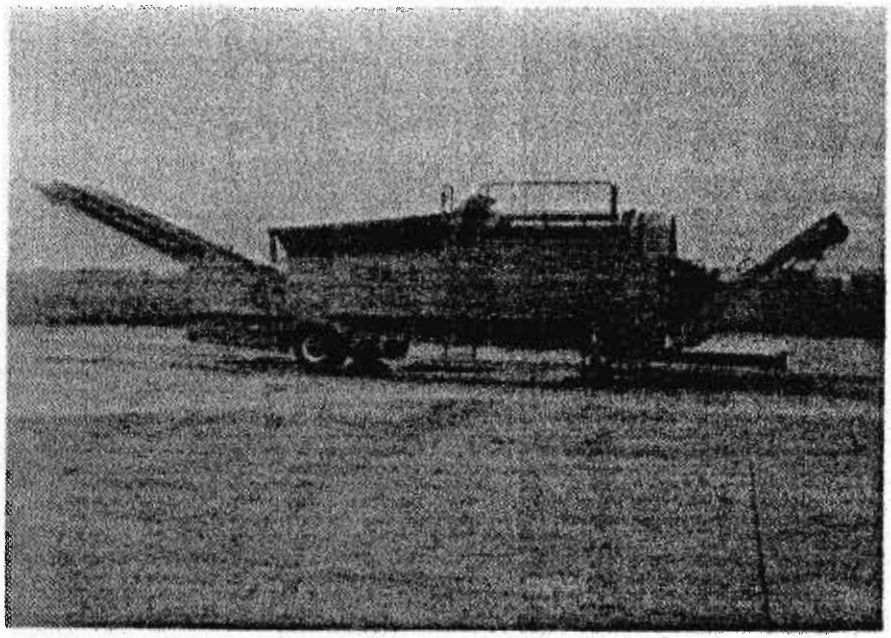
Machine Manufacturer:	
Model number:	
Serial number:	
Net power:	36.5 kW @ 2800 rpm
Machine description:	Trailered Trommel Screen
Test surface:	Concrete
Date of Test:	June 9, 2008
Test Personnel:	

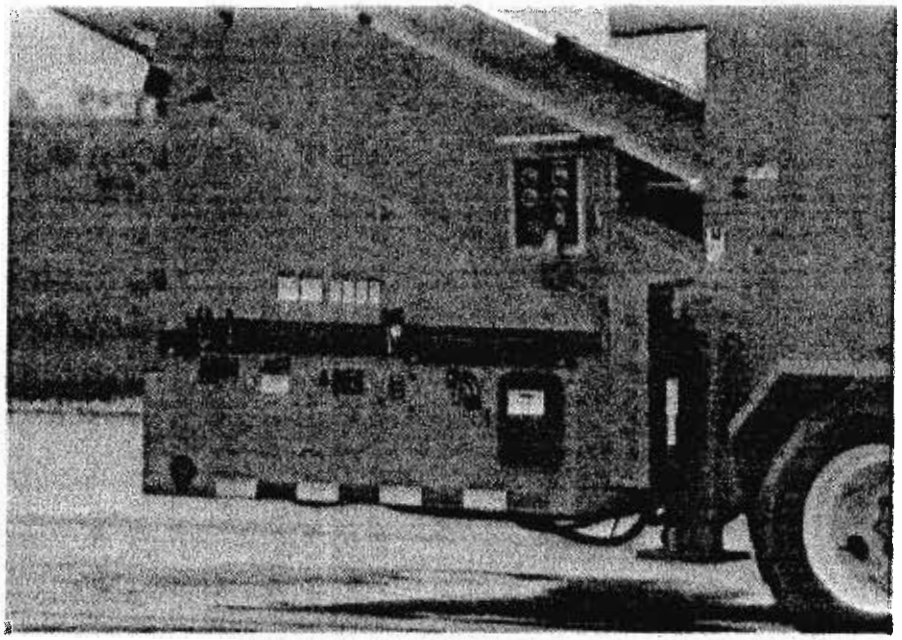
The calculated A-weighted Sound Power Level: **LwA = 112 dB(A)re 1pW**
(In accordance with ISO-3744 Section 9)

This Sound Power Level was obtained in full conformity with the procedures outlined in ISO-3744:1994(E).

Submitted by: Date: June 26, 2008


TROMMEL SCREEN





4.5 Noise emission values for a reference machine

Taking into account the harmonized standards:
DIN EN 12012-3; DIN EN ISO 3746
the machine-specific measurement conditions were taken as follows:

Machine type: 125 / 135 K Drive power: 55 kW

Grinding shaft: U-Rotor Ø 370x1305 mm n = 142 RPM Z = 37

Intake material: Paper, particle board, plywood

Noise pressure level L_{pA}

Values measured:

Idle	76,6 dB(A)	
Working noise	85,2 dB(A)	Paper
Working noise	92,1 dB(A)	Particle board
Working noise	94,1 dB(A)	Plywood

The measurement error constant K is 4 dB (A)

Noise power level L_{WA}

According to EN ISO 3746

Values measured:

Idle	92,1 dB(A)	
Working noise	100,7 dB(A)	Paper
Working noise	107,6 dB(A)	Particle board
Working noise	109,6 dB(A)	Plywood

The measurement error constant K is 4 dB (A)

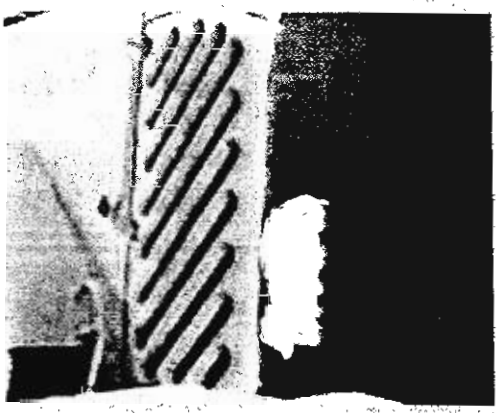
S13
S14

WHEEL LOADER

L110E

— THE PRODUCTION LOADER THAT GIVES YOU MORE

With the , we've combined the optimal production loader with the flexible allrounder. Whatever the job, the will get it done quickly and efficiently at the lowest cost. This machine has all the well thought-out features and details to give the results you demand. — the loader that gives you more, way more.



has developed and manufactured wheel loaders for half a century. The goal has always been to create the optimal machine for maximum performance and productivity, high operator comfort, and unmatched flexibility. Now, the latest experiences and leading technology have resulted in the . The high performance, low emission engine delivers close to maximum power already at low rpm. Furthermore, the powerful patented TP linkage, combined with purpose-built range of attachments, provides the flexibility needed to handle a variety of tasks. Jobs at which the excels include loading trucks, earthmoving, pallet handling and timber handling. Advanced technology helps to make this a swift, versatile and fuel efficient production machine in any application.

Get more done

You'll find the a pleasure to operate. In this respect, competing loaders simply can't compete. It's powerful, agile and easy to maneuver. Sitting comfortably in an ergonomically designed seat, you have total control over the machine. Engine and hydraulics respond immediately to your commands. Visibility is panoramic and the air in the cab is always fresh. Both operator and machine get more done with a lot less haste.

A great deal for your investment

Proven reliability, excellent financing, extremely low fuel consumption and a high trade-in value provide the cornerstones of a safe investment. Add to that outstanding handling and productivity, a market-leading operator environment to protect the person in the machine, quick and simple daily maintenance and modest service requirements.

And what do you get? The most cost efficient loader in its class, delivering unparalleled profitability — both now and in years to come.

With the everybody is a winner. Quite simply, a great deal for your money.

Specifications

Engine:	
	Stage III A/Tier 3
Max power at	28,3 r/s (1700 r/m)
SAE J1995 gross	170 kW (231 hp)
ISO 9249,	
SAE J1349 net	169 kW (230 hp)
Breakout force:	156,3 kN*
Static tipping load	
at full turn:	11 160 kg*
Buckets:	2,7 – 9,5 m³
Log grapple:	1,1 – 2,4 m²
Operating weight:	18,0 – 20,0 t
Tires:	23.5 R25
	750/65 R25

* Bucket: 3,1 m³ straight edge with bolt-on edges. Tires: 23.5 R25 L3. Standard boom.

Steering system

Steering system: Load-sensing hydrostatic articulated steering. System supply: The steering system has priority feed from a load-sensing axial piston pump with variable displacement. Steering cylinders: Two double-acting cylinders.

Steering cylinders	2
Cylinder bore	80 mm
Piston rod diameter	50 mm
Stroke	486 mm
Working pressure	21 MPa
Maximum flow	120 l/min
Maximum articulation	±40°

Cab

Instrumentation: All important information is centrally located in the operator's field of view on the Contronic monitoring system's display unit. Heater and defroster: Heater coil with filtered fresh air and fan with four speeds. Defroster vents for all window areas. Operator seat: Ergonomic seat with adjustable suspension and retractable seatbelt. The seat is mounted on a bracket, which is mounted on the rear cab wall. The forces from the retractable seat belt are absorbed by the seat rail. Standard: The cab structure is tested and approved according to ROPS (ISO 3471) and FOPS (ISO 3449). The cab meets all requirements according to ISO 6055 (Operator Overhead Protection - Industrial Trucks) and SAE J386 (Operator Restraint System).

Emergency exits	1
External sound level according to ISO 6395 (Directive 2000/14/EC)	LwA 106 dB (A)
Ventilation	3 m³/min
Heating capacity	11 kW
Air conditioning (optional)	8 kW

Hydraulic system

System supply: Two load-sensing axial piston pumps with variable displacement. The steering system always has priority. Valves: Double-acting 2-spool valve. The main valve is controlled by a 2-spool pilot valve. Lift function: The valve has four positions including lift, hold, lower and float. Inductive/magnetic automatic boom kick-out can be switched on and off and is adjustable to any position between maximum reach and full lifting height. Tilt function: The valve has three functions including rollback, hold and dump. Inductive/magnetic automatic tilt can be adjusted to the desired bucket angle. Cylinders: Double-acting cylinders for all functions. Filter: Full flow filtration through 20 micron (absolute) filter cartridge.

Working pressure maximum, pump 1	21,0 MPa
Flow	145 l/min
at	10 MPa
and engine speed	32 r/s (1900 r/min)
Working pressure, pump 2	24,0 MPa
Flow	110 l/min
at	10 MPa
and engine speed	32 r/s (1900 r/min)
Pilot system	
Working pressure	3,5 MPa
Cycle times	
Lift*	5,4 s
Tilt*	2,1 s
Lower, empty	2,5 s
Total cycle time	10,0 s

* with load as per ISO 14397 and SAE J818

Lift arm system

Torque Parallel linkage (TP linkage) with high breakout torque and parallel action throughout the entire lifting range.

Lift cylinders	2
Cylinder bore	150 mm
Piston rod diameter	80 mm
Stroke	676 mm
Tilt cylinder	1
Cylinder bore	220 mm
Piston rod diameter	110 mm
Stroke	412 mm

Service

Service accessibility: Large, easy-to-open service doors with gas struts. Swing-out radiator grille and cooling fan. Possibility to log and analyze data to facilitate troubleshooting.

Refill capacities	
Fuel tank	269 l
Engine coolant	70 l
Hydraulic oil tank	143 l
Transmission oil	38 l
Engine oil	21 l
Axles front/rear	36/41 l

APPENDIX C

Insignificant Noise Sources

Table C.1

Insignificant Noise Sources
Acme Waste Inc. Othertown Compost Facility
Othertown, Ontario

Source ID (ESDM)	*Source Description*	*Comments*
S6	HVAC unit - insignificant	Insignificant
S6	HVAC unit - insignificant	Insignificant
-	Shredder located indoors	Noise sources located inside compost operations building have no breakout noise
-	Screener located indoors	Noise sources located inside compost operations building have no breakout noise
-	Air Supply Blower	Insignificant due to shielding effects of utility and main building
S1	Biofilter	Insignificant - low flow stacksource

APPENDIX D

Sample Calculations

Table D.1

Noise Source Specification Summary Table
Acme Waste Inc. Othertown Compost Facility
Othertown, Ontario

Cadna ID	Noise Source Description	Location	Time-weighted Operation Reductions	Heavy Equipment - Operation Variables: Hourly Movements (Q) (Q/hour)	Heavy Equipment - Operation Variables: Speed (km/hour)	Data Quality	1/1 Octave Band Data: 31.5	63	125	250	500	1K	2K	4K	8K	Total Sound Power Level	HAG (m)
S2	Diesel Generator	Outdoors	Continuous **Day only**	NA	NA	SPL Data (dB)	-	-	-	-	-	-	-	-	-		2
						PWL (dB)	79.0	87.0	98.0	95.0	91.0	86.0	88.0	92.0	89.0	101.7 (dB)	
						A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1		
						PWL (dBA)	39.6	60.8	81.9	86.4	87.8	86.0	89.2	93.0	87.9	**97.0 (dBA)**	
S11	SSO and Leaf and Yard Waste Trucks	Route #1	Continuous **Day only**	Day = 2 trucks/hour Night = 0 trucks/hour	10		-	-	-	-	-	-	-	-	-		2
							-	-	-	-	-	-	-	-	-		
							-	-	-	-	-	-	-	-	-		
						PWL (dBA)	94.3	97.5	101.5	100.5	97.4	93.5	90.5	83.3	76.3	**106.3 (dBA)**	
S12	Finished Compost Trucks	Route #2	Continuous **Day only**	Day = 1 truck/hour Night = 0 trucks/hour	10	SPL Data (dB)	-	-	-	-	-	-	-	-	-		2
						PWL (dB)	-	-	-	-	-	-	-	-	-		
						A-weighted correction	-	-	-	-	-	-	-	-	-		
						PWL (dBA)	94.3	97.5	101.5	100.5	97.4	93.5	90.5	83.3	76.3	**106.3 (dBA)**	
S13	Front-End Loader for Finished Compost	Outdoors	Continuous **Day only**	NA	5	SPL Data (dB)	-	-	-	-	-	-	-	-	-		3
						PWL (dB)	-	-	-	-	-	-	-	-	-		
						A-weighted correction	-	-	-	-	-	-	-	-	-		
						PWL (dBA)	61.0	71.1	87.6	96.5	100.1	98.8	100.5	96.7	88.3	**106.0 (dBA)**	
S3B	Tub Grinder	Outdoors	Continuous **Day only**	NA	NA	SPL Data (dB)	-	-	-	-	-	-	-	-	-		2.5
						PWL (dB)	100.1	112.1	118.3	115.0	115.1	112.0	108.0	104.6	100.8	122.4 (dB)	
						A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1		
						PWL (dBA)	60.7	85.9	102.2	106.4	111.9	112.0	109.2	105.6	99.7	**117.0 (dBA)**	
S14	Front-End Loader for Active Windrows	Outdoors	Continuous **Day only**	NA	5	SPL Data (dB)	-	-	-	-	-	-	-	-	-		3
						PWL (dB)	-	-	-	-	-	-	-	-	-		
						A-weighted correction	-	-	-	-	-	-	-	-	-		
						PWL (dBA)	61.0	71.1	87.6	96.5	100.1	98.8	100.5	96.7	88.3	**106.0 (dBA)**	
S7	Screener	Outdoors	Continuous **Day only**	NA	NA	SPL Data (dB)	-	-	-	-	-	-	-	-	-		3
						PWL (dB)	102.8	103.6	108.9	105.3	106.6	104.2	100.5	95.4	91.4	113.8 (dB)	
						A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1		
						PWL (dBA)	63.4	77.4	92.8	96.7	103.4	104.2	101.7	96.4	90.3	**108.8 (dBA)**	
S8	Shredder	Outdoors	Continuous **Day only**	NA	NA	SPL Data (dB)	-	-	-	-	-	-	-	-	-		3
						PWL (dB)	-	-	-	-	-	-	-	-	-		
						A-weighted correction	-	-	-	-	-	-	-	-	-		
						PWL (dBA)	88.0	99.0	104.3	104.2	100.3	100.7	96.1	94.5	90.2	**109.6 (dBA)**	
S10	Water Truck	Route #5	Continuous **Day only**	Day = 1 truck/hour	5	SPL Data (dB)	-	-	-	-	-	-	-	-	-		2
						PWL (dB)	-	-	-	-	-	-	-	-	-		
						A-weighted correction	-	-	-	-	-	-	-	-	-		
						PWL (dBA)	94.3	97.5	101.5	100.5	97.4	93.5	90.5	83.3	76.3	**106.3 (dBA)**	

Notes:
HAG = Height Above Grade
Sound Power Levels for Sources S15 to S22 have been calculated using Chapter 7 of Hoover and Keiths Noise Control for Buildings and Manufacturing Plants. Propeller fan, pressure = 0.125 inH2O, 6,860 cfm.
Sound Power Levels for Sources S2, S3B, S7, S8, S13, S14 are based on manufacturer's data.
Sound Powere Levels for Sources S10 to S12 are based on P.E.S. Stacks Inc. extensive noise library.

ACME WASTE INC. OTHERTOWN COMPOST FACILITY

CALCULATION CONFIGURATION

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0
Max. Search Radius (m)	2000
Min. Dist Src to Rcvr	0
Partition	
Raster Factor	0.5
Max. Length of Section (m)	1000
Min. Length of Section (m)	1
Min. Length of Section (%)	0
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	760
Reference Time Night (min)	760
Daytime Penalty (dB)	0
Recr. Time Penalty (dB)	6
Night-time Penalty (dB)	10
DTM	
Standard Height (m)	0
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	1
Search Radius Src	100
Search Radius Rcvr	100
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.1
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	0
Wind Speed for Dir. (m/s)	3
Strictly acc. to AzB	

Noise Source Library

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Generator	S2	Lw		79	87	98	95	91	86	88	92	89	97	101.7	
Tub Grinder	S3B	Lw		100.1	112.1	118.3	115	115.1	112	108	104.6	100.8	117	122.4	
Water Truck	S10	Lw	A	94.3	97.5	101.5	100.5	97.4	93.5	90.5	83.3	76.3	106.3	134.2	
Shredder	S8	Lw	A	88	99	104.3	104.2	100.3	100.7	96.1	94.5	90.2	109.6	130.1	
Screener	S7	Lw		103.3	109.2	113.5	111.8	110.2	106.5	103.2	98.4	95.4	112	118.2	
Front End Loader for Finished Compost	S13	Lw	A	61	71.1	87.6	96.5	100.1	98.8	100.5	96.7	88.3	106	110.6	

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuati	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
Generator		S2	102	102	102	Lw	S2		5	5	5				720	0	0	0		(none)	2.07	a	4865.59	5742.56	2.07
Tub Grinder		S3B	122	117	117	Lw	S3B		5	0	0				720	0	0	0		(none)	2.5	a	4974.63	5834.61	2.5
Screener		S7	117	112	112	Lw	S7		5	0	0				720	0	0	0		(none)	3	a	4944.71	5862.34	3
Shredder		S8	114.6	109.6	109.6	Lw	S8		5	0	0				720	0	0	0		(none)	3	a	4952.53	5841.84	3
Front End Loader for Active windrows		S14	106	106	106	Lw	S13		0	0	0				720	0	0	0		(none)	3	a	5021.36	5828.11	3
Front End Loader for Finished Compost		S13	106	106	106	Lw	S13		0	0	0				720	0	0	0		(none)	3	a	4886.34	5709.76	3

Line Sources

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction		Attenuati	Operating Time				K0	Freq.	Direct.	Moving Pt. Src			
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number			Speed
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	(Hz)			Day	Evening	Night	(km/h)
SSO and Leaf and Yard Waste Trucks		S11	97.1	-9	-9	72.3	-33.7	-33.7	PWL-Pt	S10		0	0	0								0		(none)	4	0	0	10
Finished Compost Trucks		S12	92.7	-10.3	-10.3	69.3	-33.7	-33.7	PWL-Pt	S10		0	0	0								0		(none)	2	0	0	10
Water Truck		S10	93.5	-9.5	-9.5	72.3	-30.7	-30.7	PWL-Pt	S10		0	0	0								0		(none)	2	0	0	5

Barrier

Name	ID	Absorption		Z-Ext.	Cantilever		Height		
		left	right		horz.	vert.	Begin		End
				(m)	(m)	(m)	(m)		(m)
BR-1	BR-1						6	a	

Berms

Name	ID	rel. Height	Slope	Top Width	
		(m)	1:00	(m)	
BERM-1	BERM-1	5.5	1.5	1	

Buildings

Name	ID	RB	Residents	Absorption	Height	
					Begin	
					(m)	
Utility Building	Utility Building	x	0		3	a
Main Building	Main Building	x	0	0.21	8	a

Buildings Geometry

Name	Residents	Adsorption	Height	Coordinates			
			Begin (m)	x (m)	y (m)	z (m)	Ground (m)
Main Building			8	4868.09	5772.91	8	0
				4904	5784.67	8	0
				4907.37	5774.39	8	0
				4897.97	5771.32	8	0
				4916.63	5714.32	8	0
				4889.51	5705.44	8	0

Name	Residents	Adsorption	Height	Coordinates			
			Begin (m)	x (m)	y (m)	z (m)	Ground (m)
Utility Building			3	4910.41	5733.88	3	0
				4918.02	5736.37	3	0
				4915.53	5743.97	3	0
				4907.93	5741.49	3	0

Ground Absorption Areas

Name	M.	ID	G
Ground Absorption			1

Ground Absorption Area Geometry

Name	x (m)	y (m)	z (m)	Ground (m)
Ground Absorption	0	5656.34	0	0
	4639.18	6022.97	0	0
	-776.83	4730.95	0	0
	-552.82	3904.23	0	0
	4807.51	5653.67	0	0

Receptor Noise Impact Levels

Name	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
		Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
		(dBA)	(dBA)	(dBA)	(dBA)				(m)		(m)	(m)	(m)
POR1	POR1	44.8	36.8	45	40				4.5	r	4326.96	5526.83	4.5

Result Table

Receiver		Land Use	miting Value		rel. Axis		Lr w/o Noise Control			dL req.	Lr w/ Noise Control		Exceeding			passive NC
Name	ID		Day	Night	Station	Distance	Height	Day	Night	Day	Night	Day	Night	Day	Night	
			dB(A)	dB(A)	m	m	m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
POR1	POR1		45	40	32	527.93	2.5	44.8	36.8	-	-	0	0	-	-	-

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (m)	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	760.00
Reference Time Night (min)	760.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	1
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (m/s)	3.0
Roads (???)	
Railways (???)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver
Name: POR1
ID: POR1
X: 4326.96
Y: 5526.83
Z: 4.50

Point Source, ISO 9613, Name: "Generator", ID: "S2"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4865.59	5742.56	2.07	0	32	44.6	44.6	0.0	0.0	66.3	0.0	-5.0	0.0	0.0	0.0	0.0	-0.0	-16.7	-16.7
2	4865.59	5742.56	2.07	0	63	65.8	65.8	0.0	0.0	66.3	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	4.4	4.4
3	4865.59	5742.56	2.07	0	125	86.9	86.9	0.0	0.0	66.3	0.2	1.8	0.0	0.0	0.0	0.0	-0.0	18.6	18.6
4	4865.59	5742.56	2.07	0	250	91.4	91.4	0.0	0.0	66.3	0.6	-0.3	0.0	0.0	0.0	0.0	-0.0	24.8	24.8
5	4865.59	5742.56	2.07	0	500	92.8	92.8	0.0	0.0	66.3	1.1	-1.7	0.0	0.0	0.0	0.0	-0.0	27.1	27.1
6	4865.59	5742.56	2.07	0	1000	91.0	91.0	0.0	0.0	66.3	2.1	-1.7	0.0	0.0	0.0	0.0	-0.0	24.3	24.3
7	4865.59	5742.56	2.07	0	2000	94.2	94.2	0.0	0.0	66.3	5.6	-1.7	0.0	0.0	0.0	0.0	-0.0	24.0	24.0
8	4865.59	5742.56	2.07	0	4000	98.0	98.0	0.0	0.0	66.3	19.0	-1.7	0.0	0.0	0.0	0.0	-0.0	14.4	14.4
9	4865.59	5742.56	2.07	0	8000	92.9	92.9	0.0	0.0	66.3	67.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-39.5	-39.5
10	4865.59	5742.56	2.07	1	125	86.9	86.9	0.0	0.0	66.6	0.3	1.7	0.0	0.0	0.0	0.0	1.0	17.3	17.3
11	4865.59	5742.56	2.07	1	250	91.4	91.4	0.0	0.0	66.6	0.6	-0.4	0.0	0.0	0.0	0.0	1.0	23.6	23.6
12	4865.59	5742.56	2.07	1	500	92.8	92.8	0.0	0.0	66.6	1.2	-1.8	0.0	0.0	0.0	0.0	1.0	25.8	25.8
13	4865.59	5742.56	2.07	1	1000	91.0	91.0	0.0	0.0	66.6	2.2	-1.8	0.0	0.0	0.0	0.0	1.0	23.0	23.0
14	4865.59	5742.56	2.07	1	2000	94.2	94.2	0.0	0.0	66.6	5.8	-1.8	0.0	0.0	0.0	0.0	1.0	22.6	22.6
15	4865.59	5742.56	2.07	1	4000	98.0	98.0	0.0	0.0	66.6	19.8	-1.8	0.0	0.0	0.0	0.0	1.0	12.4	12.4
16	4865.59	5742.56	2.07	1	8000	92.9	92.9	0.0	0.0	66.6	70.5	-1.8	0.0	0.0	0.0	0.0	1.0	-43.4	-43.4

Point Source, ISO 9613, Name: "Tub Grinder", ID: "S3B"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4974.63	5834.61	2.50	0	32	65.5	-88.0	0.0	0.0	68.1	0.0	-5.1	0.0	0.0	0.0	0.0	-0.0	2.4	-88.0
2	4974.63	5834.61	2.50	0	63	90.7	-88.0	0.0	0.0	68.1	0.1	-5.1	0.0	0.0	0.0	0.0	-0.0	27.6	-88.0
3	4974.63	5834.61	2.50	0	125	107.0	-88.0	0.0	0.0	68.1	0.3	1.5	0.0	0.0	0.0	0.0	-0.0	37.1	-88.0
4	4974.63	5834.61	2.50	0	250	111.2	-88.0	0.0	0.0	68.1	0.8	-0.8	0.0	0.0	0.0	0.0	-0.0	43.1	-88.0
5	4974.63	5834.61	2.50	0	500	116.7	-88.0	0.0	0.0	68.1	1.4	-2.2	0.0	0.0	0.0	0.0	-0.0	49.3	-88.0
6	4974.63	5834.61	2.50	0	1000	116.8	-88.0	0.0	0.0	68.1	2.6	-2.2	0.0	0.0	0.0	0.0	-0.0	48.2	-88.0
7	4974.63	5834.61	2.50	0	2000	114.0	-88.0	0.0	0.0	68.1	6.9	-2.2	0.0	0.0	0.0	0.0	-0.0	41.1	-88.0
8	4974.63	5834.61	2.50	0	4000	110.4	-88.0	0.0	0.0	68.1	23.5	-2.2	0.0	0.0	0.0	0.0	-0.0	20.9	-88.0
9	4974.63	5834.61	2.50	0	8000	104.5	-88.0	0.0	0.0	68.1	83.8	-2.2	0.0	0.0	0.0	0.0	-0.0	-45.3	-88.0

Point Source, ISO 9613, Name: "Screener", ID: "S7"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4944.71	5862.34	3.00	0	32	68.7	-88.0	0.0	0.0	67.9	0.0	-5.0	0.0	0.0	0.0	0.0	-0.0	5.7	-88.0
2	4944.71	5862.34	3.00	0	63	87.8	-88.0	0.0	0.0	67.9	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	24.8	-88.0
3	4944.71	5862.34	3.00	0	125	102.2	-88.0	0.0	0.0	67.9	0.3	1.6	0.0	0.0	0.0	0.0	-0.0	32.4	-88.0
4	4944.71	5862.34	3.00	0	250	108.0	-88.0	0.0	0.0	67.9	0.7	-0.7	0.0	0.0	0.0	0.0	-0.0	39.9	-88.0
5	4944.71	5862.34	3.00	0	500	111.8	-88.0	0.0	0.0	67.9	1.4	-2.0	0.0	0.0	0.0	0.0	-0.0	44.5	-88.0
6	4944.71	5862.34	3.00	0	1000	111.3	-88.0	0.0	0.0	67.9	2.6	-2.0	0.0	0.0	0.0	0.0	-0.0	42.8	-88.0
7	4944.71	5862.34	3.00	0	2000	109.2	-88.0	0.0	0.0	67.9	6.8	-2.0	0.0	0.0	0.0	0.0	-0.0	36.5	-88.0
8	4944.71	5862.34	3.00	0	4000	104.2	-88.0	0.0	0.0	67.9	23.0	-2.0	0.0	0.0	0.0	0.0	-0.0	15.2	-88.0
9	4944.71	5862.34	3.00	0	8000	99.1	-88.0	0.0	0.0	67.9	82.2	-2.0	0.0	0.0	0.0	0.0	-0.0	-49.0	-88.0

Point Source, ISO 9613, Name: "Shredder", ID: "S8"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4952.53	5841.84	3.00	0	32	92.8	-88.0	0.0	0.0	67.9	0.0	-5.0	0.0	0.0	0.0	0.0	-0.0	29.9	-88.0
2	4952.53	5841.84	3.00	0	63	103.8	-88.0	0.0	0.0	67.9	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	40.8	-88.0
3	4952.53	5841.84	3.00	0	125	109.1	-88.0	0.0	0.0	67.9	0.3	1.6	0.0	0.0	0.0	0.0	-0.0	39.3	-88.0
4	4952.53	5841.84	3.00	0	250	109.0	-88.0	0.0	0.0	67.9	0.7	-0.7	0.0	0.0	0.0	0.0	-0.0	41.0	-88.0
5	4952.53	5841.84	3.00	0	500	105.1	-88.0	0.0	0.0	67.9	1.4	-2.0	0.0	0.0	0.0	0.0	-0.0	37.8	-88.0
6	4952.53	5841.84	3.00	0	1000	105.5	-88.0	0.0	0.0	67.9	2.6	-2.0	0.0	0.0	0.0	0.0	-0.0	37.0	-88.0
7	4952.53	5841.84	3.00	0	2000	100.9	-88.0	0.0	0.0	67.9	6.8	-2.0	0.0	0.0	0.0	0.0	-0.0	28.2	-88.0

Point Source, ISO 9613, Name: "Shredder", ID: "S8"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
8	4952.53	5841.84	3.00	0	4000	99.3	-88.0	0.0	0.0	67.9	22.9	-2.0	0.0	0.0	0.0	0.0	-0.0	10.5	-88.0
9	4952.53	5841.84	3.00	0	8000	95.0	-88.0	0.0	0.0	67.9	81.9	-2.0	0.0	0.0	0.0	0.0	-0.0	-52.8	-88.0

Point Source, ISO 9613, Name: "Front End Loader for Active windrows", ID: "S14"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	5021.36	5828.11	3.00	0	32	61.0	61.0	0.0	0.0	68.6	0.0	-5.1	0.0	0.0	2.2	0.0	-0.0	-4.7	-4.7
2	5021.36	5828.11	3.00	0	63	71.1	71.1	0.0	0.0	68.6	0.1	-5.1	0.0	0.0	2.6	0.0	-0.0	5.0	5.0
3	5021.36	5828.11	3.00	0	125	87.6	87.6	0.0	0.0	68.6	0.3	1.4	0.0	0.0	2.0	0.0	-0.0	15.3	15.3
4	5021.36	5828.11	3.00	0	250	96.5	96.5	0.0	0.0	68.6	0.8	-0.8	0.0	0.0	3.5	0.0	-0.0	24.4	24.4
5	5021.36	5828.11	3.00	0	500	100.1	100.1	0.0	0.0	68.6	1.5	-2.2	0.0	0.0	4.0	0.0	-0.0	28.3	28.3
6	5021.36	5828.11	3.00	0	1000	98.8	98.8	0.0	0.0	68.6	2.8	-2.2	0.0	0.0	4.3	0.0	-0.0	25.4	25.4
7	5021.36	5828.11	3.00	0	2000	100.5	100.5	0.0	0.0	68.6	7.3	-2.2	0.0	0.0	4.5	0.0	-0.0	22.3	22.3
8	5021.36	5828.11	3.00	0	4000	96.7	96.7	0.0	0.0	68.6	24.8	-2.2	0.0	0.0	4.7	0.0	-0.0	0.9	0.9
9	5021.36	5828.11	3.00	0	8000	88.3	88.3	0.0	0.0	68.6	88.5	-2.2	0.0	0.0	4.8	0.0	-0.0	-71.3	-71.3

Point Source, ISO 9613, Name: "Front End Loader for Finished Compost", ID: "S13"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4886.34	5709.76	3.00	0	32	61.0	61.0	0.0	0.0	66.4	0.0	-4.8	0.0	0.0	0.0	0.0	-0.0	-0.6	-0.6
2	4886.34	5709.76	3.00	0	63	71.1	71.1	0.0	0.0	66.4	0.1	-4.8	0.0	0.0	0.0	0.0	-0.0	9.5	9.5
3	4886.34	5709.76	3.00	0	125	87.6	87.6	0.0	0.0	66.4	0.2	1.9	0.0	0.0	0.0	0.0	-0.0	19.1	19.1
4	4886.34	5709.76	3.00	0	250	96.5	96.5	0.0	0.0	66.4	0.6	-0.2	0.0	0.0	0.0	0.0	-0.0	29.7	29.7
5	4886.34	5709.76	3.00	0	500	100.1	100.1	0.0	0.0	66.4	1.1	-1.6	0.0	0.0	0.0	0.0	-0.0	34.1	34.1
6	4886.34	5709.76	3.00	0	1000	98.8	98.8	0.0	0.0	66.4	2.1	-1.6	0.0	0.0	0.0	0.0	-0.0	31.8	31.8
7	4886.34	5709.76	3.00	0	2000	100.5	100.5	0.0	0.0	66.4	5.7	-1.6	0.0	0.0	0.0	0.0	-0.0	30.0	30.0
8	4886.34	5709.76	3.00	0	4000	96.7	96.7	0.0	0.0	66.4	19.3	-1.6	0.0	0.0	0.0	0.0	-0.0	12.6	12.6
9	4886.34	5709.76	3.00	0	8000	88.3	88.3	0.0	0.0	66.4	68.8	-1.6	0.0	0.0	0.0	0.0	-0.0	-45.3	-45.3
10	4886.34	5709.76	3.00	1	32	61.0	61.0	0.0	0.0	66.5	0.0	-4.9	0.0	0.0	0.0	0.0	1.0	-1.6	-1.6
11	4886.34	5709.76	3.00	1	63	71.1	71.1	0.0	0.0	66.5	0.1	-4.9	0.0	0.0	0.0	0.0	1.0	8.4	8.4
12	4886.34	5709.76	3.00	1	125	87.6	87.6	0.0	0.0	66.5	0.2	1.9	0.0	0.0	0.0	0.0	1.0	18.0	18.0
13	4886.34	5709.76	3.00	1	250	96.5	96.5	0.0	0.0	66.5	0.6	-0.2	0.0	0.0	0.0	0.0	1.0	28.6	28.6
14	4886.34	5709.76	3.00	1	500	100.1	100.1	0.0	0.0	66.5	1.1	-1.6	0.0	0.0	0.0	0.0	1.0	33.1	33.1
15	4886.34	5709.76	3.00	1	1000	98.8	98.8	0.0	0.0	66.5	2.2	-1.6	0.0	0.0	0.0	0.0	1.0	30.8	30.8
16	4886.34	5709.76	3.00	1	2000	100.5	100.5	0.0	0.0	66.5	5.7	-1.6	0.0	0.0	0.0	0.0	1.0	28.9	28.9
17	4886.34	5709.76	3.00	1	4000	96.7	96.7	0.0	0.0	66.5	19.4	-1.6	0.0	0.0	0.0	0.0	1.0	11.4	11.4
18	4886.34	5709.76	3.00	1	8000	88.3	88.3	0.0	0.0	66.5	69.2	-1.6	0.0	0.0	0.0	0.0	1.0	-46.8	-46.8

Line Source, ISO 9613, Name: "SSO and Leaf and Yard Waste Trucks", ID: "S11"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4832.98	5790.35	2.00	0	32	80.1	-25.9	0.0	0.0	66.1	0.0	-5.0	0.0	0.0	0.0	0.0	-0.0	18.9	-87.1
2	4832.98	5790.35	2.00	0	63	83.3	-22.7	0.0	0.0	66.1	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	22.1	-83.9
3	4832.98	5790.35	2.00	0	125	87.3	-18.7	0.0	0.0	66.1	0.2	1.8	0.0	0.0	0.0	0.0	-0.0	19.1	-86.9
4	4832.98	5790.35	2.00	0	250	86.3	-19.7	0.0	0.0	66.1	0.6	-0.3	0.0	0.0	0.0	0.0	-0.0	19.8	-86.2
5	4832.98	5790.35	2.00	0	500	83.2	-22.8	0.0	0.0	66.1	1.1	-1.6	0.0	0.0	0.0	0.0	-0.0	17.6	-88.4
6	4832.98	5790.35	2.00	0	1000	79.3	-26.7	0.0	0.0	66.1	2.1	-1.6	0.0	0.0	0.0	0.0	-0.0	12.7	-93.3
7	4832.98	5790.35	2.00	0	2000	76.3	-29.7	0.0	0.0	66.1	5.5	-1.6	0.0	0.0	0.0	0.0	-0.0	6.3	-99.7
8	4832.98	5790.35	2.00	0	4000	69.1	-36.9	0.0	0.0	66.1	18.7	-1.6	0.0	0.0	0.0	0.0	-0.0	-14.1	-120.1
9	4832.98	5790.35	2.00	0	8000	62.1	-43.9	0.0	0.0	66.1	66.7	-1.6	0.0	0.0	0.0	0.0	-0.0	-69.0	-175.1
10	4820.28	5714.95	2.00	0	32	79.1	-26.9	0.0	0.0	65.5	0.0	-4.9	0.0	0.0	0.0	0.0	-0.0	18.5	-87.5
11	4820.28	5714.95	2.00	0	63	82.3	-23.7	0.0	0.0	65.5	0.1	-4.9	0.0	0.0	0.0	0.0	-0.0	21.7	-84.4
12	4820.28	5714.95	2.00	0	125	86.3	-19.7	0.0	0.0	65.5	0.2	3.1	0.0	0.0	0.0	0.0	-0.0	17.5	-88.5
13	4820.28	5714.95	2.00	0	250	85.3	-20.7	0.0	0.0	65.5	0.6	1.8	0.0	0.0	0.0	0.0	-0.0	17.5	-88.5
14	4820.28	5714.95	2.00	0	500	82.2	-23.8	0.0	0.0	65.5	1.0	-0.6	0.0	0.0	0.0	0.0	-0.0	16.3	-89.8
15	4820.28	5714.95	2.00	0	1000	78.3	-27.7	0.0	0.0	65.5	1.9	-1.1	0.0	0.0	0.0	0.0	-0.0	12.0	-94.0
16	4820.28	5714.95	2.00	0	2000	75.3	-30.7	0.0	0.0	65.5	5.1	-1.1	0.0	0.0	0.0	0.0	-0.0	5.8	-100.2
17	4820.28	5714.95	2.00	0	4000	68.1	-37.9	0.0	0.0	65.5	17.3	-1.1	0.0	0.0	0.0	0.0	-0.0	-13.6	-119.6
18	4820.28	5714.95	2.00	0	8000	61.1	-44.9	0.0	0.0	65.5	61.7	-1.1	0.0	0.0	0.0	0.0	-0.0	-65.0	-171.0
19	4886.08	5806.15	2.00	0	32	76.9	-29.1	0.0	0.0	66.9	0.0	-5.1	0.0	0.0	0.0	0.0	-0.0	15.0	-91.0
20	4886.08	5806.15	2.00	0	63	80.1	-25.9	0.0	0.0	66.9	0.1	-5.1	0.0	0.0	0.0	0.0	-0.0	18.2	-87.8
21	4886.08	5806.15	2.00	0	125	84.1	-21.9	0.0	0.0	66.9	0.3	1.6	0.0	0.0	0.0	0.0	-0.0	15.3	-90.7
22	4886.08	5806.15	2.00	0	250	83.1	-22.9	0.0	0.0	66.9	0.7	-0.5	0.0	0.0	0.0	0.0	-0.0	16.1	-90.0

Line Source, ISO 9613, Name: "SSO and Leaf and Yard Waste Trucks", ID: "S11"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
23	4886.08	5806.15	2.00	0	500	80.0	-26.0	0.0	0.0	66.9	1.2	-1.9	0.0	0.0	0.0	0.0	-0.0	13.8	-92.2
24	4886.08	5806.15	2.00	0	1000	76.1	-29.9	0.0	0.0	66.9	2.3	-1.9	0.0	0.0	0.0	0.0	-0.0	8.8	-97.2
25	4886.08	5806.15	2.00	0	2000	73.1	-32.9	0.0	0.0	66.9	6.0	-1.9	0.0	0.0	0.0	0.0	-0.0	2.0	-104.0
26	4886.08	5806.15	2.00	0	4000	65.9	-40.1	0.0	0.0	66.9	20.5	-1.9	0.0	0.0	0.0	0.0	-0.0	-19.6	-125.6
27	4886.08	5806.15	2.00	0	8000	58.9	-47.1	0.0	0.0	66.9	73.0	-1.9	0.0	0.0	0.0	0.0	-0.0	-79.2	-185.2
28	4894.55	5784.72	2.00	0	32	56.4	-49.6	0.0	0.0	66.9	0.0	-5.1	0.0	0.0	2.0	0.0	-0.0	-7.4	-113.4
29	4894.55	5784.72	2.00	0	63	59.6	-46.4	0.0	0.0	66.9	0.1	-5.1	0.0	0.0	2.1	0.0	-0.0	-4.4	-110.5
30	4894.55	5784.72	2.00	0	125	63.6	-42.4	0.0	0.0	66.9	0.3	1.6	0.0	0.0	1.7	0.0	-0.0	-6.9	-112.9
31	4894.55	5784.72	2.00	0	250	62.6	-43.4	0.0	0.0	66.9	0.7	-0.5	0.0	0.0	2.9	0.0	-0.0	-7.3	-113.3
32	4894.55	5784.72	2.00	0	500	59.5	-46.5	0.0	0.0	66.9	1.2	-1.9	0.0	0.0	3.5	0.0	-0.0	-10.2	-116.2
33	4894.55	5784.72	2.00	0	1000	55.6	-50.4	0.0	0.0	66.9	2.3	-1.9	0.0	0.0	4.1	0.0	-0.0	-15.8	-121.8
34	4894.55	5784.72	2.00	0	2000	52.6	-53.4	0.0	0.0	66.9	6.0	-1.9	0.0	0.0	4.6	0.0	-0.0	-23.0	-129.0
35	4894.55	5784.72	2.00	0	4000	45.4	-60.6	0.0	0.0	66.9	20.4	-1.9	0.0	0.0	4.9	0.0	-0.0	-44.9	-150.9
36	4894.55	5784.72	2.00	0	8000	38.4	-67.6	0.0	0.0	66.9	72.9	-1.9	0.0	0.0	5.1	0.0	-0.0	-104.6	-210.6
37	4858.38	5790.35	2.00	0	32	76.4	-29.6	0.0	0.0	66.5	0.0	-5.0	0.0	0.0	0.0	0.0	-0.0	14.9	-91.1
38	4858.38	5790.35	2.00	0	63	79.6	-26.4	0.0	0.0	66.5	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	18.1	-88.0
39	4858.38	5790.35	2.00	0	125	83.6	-22.4	0.0	0.0	66.5	0.2	1.7	0.0	0.0	0.0	0.0	-0.0	15.1	-90.9
40	4858.38	5790.35	2.00	0	250	82.6	-23.4	0.0	0.0	66.5	0.6	-0.4	0.0	0.0	0.0	0.0	-0.0	15.9	-90.1
41	4858.38	5790.35	2.00	0	500	79.5	-26.5	0.0	0.0	66.5	1.1	-1.8	0.0	0.0	0.0	0.0	-0.0	13.6	-92.4
42	4858.38	5790.35	2.00	0	1000	75.6	-30.4	0.0	0.0	66.5	2.2	-1.8	0.0	0.0	0.0	0.0	-0.0	8.7	-97.3
43	4858.38	5790.35	2.00	0	2000	72.6	-33.4	0.0	0.0	66.5	5.7	-1.8	0.0	0.0	0.0	0.0	-0.0	2.1	-103.9
44	4858.38	5790.35	2.00	0	4000	65.4	-40.6	0.0	0.0	66.5	19.4	-1.8	0.0	0.0	0.0	0.0	-0.0	-18.8	-124.8
45	4858.38	5790.35	2.00	0	8000	58.4	-47.6	0.0	0.0	66.5	69.3	-1.8	0.0	0.0	0.0	0.0	-0.0	-75.7	-181.7
46	4893.02	5784.03	2.00	0	32	65.6	-40.4	0.0	0.0	66.9	0.0	-5.1	0.0	0.0	2.0	0.0	-0.0	1.8	-104.3
47	4893.02	5784.03	2.00	0	63	68.8	-37.2	0.0	0.0	66.9	0.1	-5.1	0.0	0.0	2.2	0.0	-0.0	4.7	-101.3
48	4893.02	5784.03	2.00	0	125	72.8	-33.2	0.0	0.0	66.9	0.3	1.6	0.0	0.0	1.8	0.0	-0.0	2.3	-103.8
49	4893.02	5784.03	2.00	0	250	71.8	-34.2	0.0	0.0	66.9	0.7	-0.5	0.0	0.0	3.0	0.0	-0.0	1.8	-104.3
50	4893.02	5784.03	2.00	0	500	68.7	-37.3	0.0	0.0	66.9	1.2	-1.9	0.0	0.0	3.6	0.0	-0.0	-1.1	-107.1
51	4893.02	5784.03	2.00	0	1000	64.8	-41.2	0.0	0.0	66.9	2.3	-1.9	0.0	0.0	4.2	0.0	-0.0	-6.7	-112.7
52	4893.02	5784.03	2.00	0	2000	61.8	-44.2	0.0	0.0	66.9	6.0	-1.9	0.0	0.0	4.6	0.0	-0.0	-13.9	-119.9
53	4893.02	5784.03	2.00	0	4000	54.6	-51.4	0.0	0.0	66.9	20.4	-1.9	0.0	0.0	4.9	0.0	-0.0	-35.7	-141.7
54	4893.02	5784.03	2.00	0	8000	47.6	-58.4	0.0	0.0	66.9	72.7	-1.9	0.0	0.0	5.2	0.0	-0.0	-95.3	-201.3
55	4882.97	5780.85	2.00	0	32	72.8	-33.2	0.0	0.0	66.7	0.0	-5.0	0.0	0.0	0.0	0.0	-0.0	11.1	-94.9
56	4882.97	5780.85	2.00	0	63	76.0	-30.0	0.0	0.0	66.7	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	14.3	-91.8
57	4882.97	5780.85	2.00	0	125	80.0	-26.0	0.0	0.0	66.7	0.3	1.7	0.0	0.0	0.0	0.0	-0.0	11.4	-94.7
58	4882.97	5780.85	2.00	0	250	79.0	-27.0	0.0	0.0	66.7	0.6	-0.5	0.0	0.0	0.0	0.0	-0.0	12.1	-93.9
59	4882.97	5780.85	2.00	0	500	75.9	-30.1	0.0	0.0	66.7	1.2	-1.8	0.0	0.0	0.0	0.0	-0.0	9.8	-96.2
60	4882.97	5780.85	2.00	0	1000	72.0	-34.0	0.0	0.0	66.7	2.2	-1.8	0.0	0.0	0.0	0.0	-0.0	4.9	-101.1
61	4882.97	5780.85	2.00	0	2000	69.0	-37.0	0.0	0.0	66.7	5.9	-1.8	0.0	0.0	0.0	0.0	-0.0	-1.8	-107.8
62	4882.97	5780.85	2.00	0	4000	61.8	-44.2	0.0	0.0	66.7	20.0	-1.8	0.0	0.0	0.0	0.0	-0.0	-23.1	-129.1
63	4882.97	5780.85	2.00	0	8000	54.8	-51.2	0.0	0.0	66.7	71.5	-1.8	0.0	0.0	0.0	0.0	-0.0	-81.5	-187.6
64	4868.17	5828.98	2.00	0	32	73.2	-32.8	0.0	0.0	66.8	0.0	-5.1	0.0	0.0	0.0	0.0	-0.0	11.4	-94.6
65	4868.17	5828.98	2.00	0	63	76.4	-29.6	0.0	0.0	66.8	0.1	-5.1	0.0	0.0	0.0	0.0	-0.0	14.5	-91.5
66	4868.17	5828.98	2.00	0	125	80.4	-25.6	0.0	0.0	66.8	0.3	1.7	0.0	0.0	0.0	0.0	-0.0	11.6	-94.4
67	4868.17	5828.98	2.00	0	250	79.4	-26.6	0.0	0.0	66.8	0.7	-0.5	0.0	0.0	0.0	0.0	-0.0	12.4	-93.7
68	4868.17	5828.98	2.00	0	500	76.3	-29.7	0.0	0.0	66.8	1.2	-1.9	0.0	0.0	0.0	0.0	-0.0	10.1	-95.9
69	4868.17	5828.98	2.00	0	1000	72.4	-33.6	0.0	0.0	66.8	2.3	-1.9	0.0	0.0	0.0	0.0	-0.0	5.1	-100.9
70	4868.17	5828.98	2.00	0	2000	69.4	-36.6	0.0	0.0	66.8	6.0	-1.9	0.0	0.0	0.0	0.0	-0.0	-1.6	-107.6
71	4868.17	5828.98	2.00	0	4000	62.2	-43.8	0.0	0.0	66.8	20.3	-1.9	0.0	0.0	0.0	0.0	-0.0	-23.1	-129.1
72	4868.17	5828.98	2.00	0	8000	55.2	-50.8	0.0	0.0	66.8	72.5	-1.9	0.0	0.0	0.0	0.0	-0.0	-82.3	-188.3
73	4854.24	5823.67	2.00	1	2000	68.7	-37.4	0.0	0.0	68.0	6.8	-2.1	0.0	0.0	0.0	0.0	1.0	-5.0	-111.0
74	4854.24	5823.67	2.00	1	4000	61.5	-44.6	0.0	0.0	68.0	23.2	-2.1	0.0	0.0	0.0	0.0	1.0	-28.5	-134.5
75	4854.24	5823.67	2.00	1	8000	54.5	-51.6	0.0	0.0	68.0	82.6	-2.1	0.0	0.0	0.0	0.0	1.0	-94.9	-201.0
76	4811.39	5756.52	2.00	1	1000	71.3	-34.7	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	0.0	0.0	1.0	2.6	-103.4
77	4811.39	5756.52	2.00	1	2000	68.3	-37.7	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	0.0	0.0	1.0	-4.3	-110.3
78	4811.39	5756.52	2.00	1	4000	61.1	-44.9	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	0.0	0.0	1.0	-26.6	-132.6
79	4811.39	5756.52	2.00	1	8000	54.1	-51.9	0.0	0.0	67.3	76.3	-2.0	0.0	0.0	0.0	0.0	1.0	-88.5	-194.6
80	4826.48	5698.12	2.00	1	1000	73.4	-32.7	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	0.0	0.0	1.0	4.7	-101.3
81	4826.48	5698.12	2.00	1	2000	70.4	-35.7	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	0.0	0.0	1.0	-2.2	-108.3
82	4826.48	5698.12	2.00	1	4000	63.2	-42.9	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	0.0	0.0	1.0	-24.5	-130.6
83	4826.48	5698.12	2.00	1	8000	56.2	-49.9	0.0	0.0	67.3	76.3	-2.0	0.0	0.0	0.0	0.0	1.0	-86.4	-192.4
84	4820.59	5714.11	2.00	1	1000	69.5	-36.5	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	0.0	0.0	1.0	0.8	-105.2
85	4820.59	5714.11	2.00	1	2000	66.5	-39.5	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	0.0	0.0	1.0	-6.1	-112.2

Line Source, ISO 9613, Name: "SSO and Leaf and Yard Waste Trucks", ID: "S11"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
86	4820.59	5714.11	2.00	1	4000	59.3	-46.7	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	0.0	0.0	1.0	-28.5	-134.5
87	4820.59	5714.11	2.00	1	8000	52.3	-53.7	0.0	0.0	67.3	76.4	-2.0	0.0	0.0	0.0	0.0	1.0	-90.5	-196.5
88	4813.09	5734.44	2.00	1	1000	74.8	-31.3	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	0.0	0.0	1.0	6.0	-100.0
89	4813.09	5734.44	2.00	1	2000	71.8	-34.3	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	0.0	0.0	1.0	-0.9	-106.9
90	4813.09	5734.44	2.00	1	4000	64.6	-41.5	0.0	0.0	67.3	21.5	-2.0	0.0	0.0	0.0	0.0	1.0	-23.3	-129.3
91	4813.09	5734.44	2.00	1	8000	57.6	-48.5	0.0	0.0	67.3	76.7	-2.0	0.0	0.0	0.0	0.0	1.0	-85.5	-191.5
92	4855.69	5792.38	2.00	1	4000	60.6	-45.5	0.0	0.0	68.4	24.2	-2.3	0.0	0.0	0.0	0.0	1.0	-30.7	-136.7
93	4855.69	5792.38	2.00	1	8000	53.6	-52.5	0.0	0.0	68.4	86.2	-2.3	0.0	0.0	0.0	0.0	1.0	-99.8	-205.8
94	4858.96	5830.52	2.00	1	2000	54.6	-51.4	0.0	0.0	67.9	6.8	-2.1	0.0	0.0	0.0	0.0	1.0	-18.9	-124.9
95	4858.96	5830.52	2.00	1	4000	47.4	-58.6	0.0	0.0	67.9	22.9	-2.1	0.0	0.0	0.0	0.0	1.0	-42.3	-148.3
96	4858.96	5830.52	2.00	1	8000	40.4	-65.6	0.0	0.0	67.9	81.8	-2.1	0.0	0.0	0.0	0.0	1.0	-108.1	-214.1

Line Source, ISO 9613, Name: "Finished Compost Trucks", ID: "S12"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4834.30	5790.88	2.00	0	32	77.0	-26.0	0.0	0.0	66.1	0.0	-5.0	0.0	0.0	0.0	0.0	-0.0	15.8	-87.2
2	4834.30	5790.88	2.00	0	63	80.2	-22.8	0.0	0.0	66.1	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	18.9	-84.1
3	4834.30	5790.88	2.00	0	125	84.2	-18.8	0.0	0.0	66.1	0.2	1.8	0.0	0.0	0.0	0.0	-0.0	16.0	-87.0
4	4834.30	5790.88	2.00	0	250	83.2	-19.8	0.0	0.0	66.1	0.6	-0.3	0.0	0.0	0.0	0.0	-0.0	16.7	-86.3
5	4834.30	5790.88	2.00	0	500	80.1	-22.9	0.0	0.0	66.1	1.1	-1.6	0.0	0.0	0.0	0.0	-0.0	14.5	-88.5
6	4834.30	5790.88	2.00	0	1000	76.2	-26.8	0.0	0.0	66.1	2.1	-1.7	0.0	0.0	0.0	0.0	-0.0	9.6	-93.4
7	4834.30	5790.88	2.00	0	2000	73.2	-29.8	0.0	0.0	66.1	5.5	-1.7	0.0	0.0	0.0	0.0	-0.0	3.1	-99.9
8	4834.30	5790.88	2.00	0	4000	66.0	-37.0	0.0	0.0	66.1	18.7	-1.7	0.0	0.0	0.0	0.0	-0.0	-17.3	-120.3
9	4834.30	5790.88	2.00	0	8000	59.0	-44.0	0.0	0.0	66.1	66.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-72.4	-175.4
10	4821.34	5715.74	2.00	0	32	76.2	-26.8	0.0	0.0	65.5	0.0	-4.9	0.0	0.0	0.0	0.0	-0.0	15.6	-87.4
11	4821.34	5715.74	2.00	0	63	79.4	-23.6	0.0	0.0	65.5	0.1	-4.9	0.0	0.0	0.0	0.0	-0.0	18.7	-84.3
12	4821.34	5715.74	2.00	0	125	83.4	-19.6	0.0	0.0	65.5	0.2	3.0	0.0	0.0	0.0	0.0	-0.0	14.7	-88.3
13	4821.34	5715.74	2.00	0	250	82.4	-20.6	0.0	0.0	65.5	0.6	1.6	0.0	0.0	0.0	0.0	-0.0	14.7	-88.3
14	4821.34	5715.74	2.00	0	500	79.3	-23.7	0.0	0.0	65.5	1.0	-0.6	0.0	0.0	0.0	0.0	-0.0	13.4	-89.6
15	4821.34	5715.74	2.00	0	1000	75.4	-27.6	0.0	0.0	65.5	1.9	-1.1	0.0	0.0	0.0	0.0	-0.0	9.1	-93.9
16	4821.34	5715.74	2.00	0	2000	72.4	-30.6	0.0	0.0	65.5	5.1	-1.2	0.0	0.0	0.0	0.0	-0.0	2.9	-100.1
17	4821.34	5715.74	2.00	0	4000	65.2	-37.8	0.0	0.0	65.5	17.3	-1.2	0.0	0.0	0.0	0.0	-0.0	-16.5	-119.5
18	4821.34	5715.74	2.00	0	8000	58.2	-44.8	0.0	0.0	65.5	61.9	-1.2	0.0	0.0	0.0	0.0	-0.0	-68.0	-171.0
19	4883.51	5830.57	2.00	0	32	74.1	-28.9	0.0	0.0	67.0	0.0	-5.1	0.0	0.0	0.0	0.0	-0.0	12.1	-90.9
20	4883.51	5830.57	2.00	0	63	77.3	-25.7	0.0	0.0	67.0	0.1	-5.1	0.0	0.0	0.0	0.0	-0.0	15.3	-87.8
21	4883.51	5830.57	2.00	0	125	81.3	-21.7	0.0	0.0	67.0	0.3	1.6	0.0	0.0	0.0	0.0	-0.0	12.4	-90.6
22	4883.51	5830.57	2.00	0	250	80.3	-22.7	0.0	0.0	67.0	0.7	-0.5	0.0	0.0	0.0	0.0	-0.0	13.1	-89.9
23	4883.51	5830.57	2.00	0	500	77.2	-25.8	0.0	0.0	67.0	1.2	-1.9	0.0	0.0	0.0	0.0	-0.0	10.9	-92.2
24	4883.51	5830.57	2.00	0	1000	73.3	-29.7	0.0	0.0	67.0	2.3	-1.9	0.0	0.0	0.0	0.0	-0.0	5.8	-97.2
25	4883.51	5830.57	2.00	0	2000	70.3	-32.7	0.0	0.0	67.0	6.1	-1.9	0.0	0.0	0.0	0.0	-0.0	-1.0	-104.0
26	4883.51	5830.57	2.00	0	4000	63.1	-39.9	0.0	0.0	67.0	20.8	-1.9	0.0	0.0	0.0	0.0	-0.0	-22.8	-125.8
27	4883.51	5830.57	2.00	0	8000	56.1	-46.9	0.0	0.0	67.0	74.1	-1.9	0.0	0.0	0.0	0.0	-0.0	-83.1	-186.2
28	4854.62	5821.78	2.00	1	2000	65.9	-37.1	0.0	0.0	68.0	6.8	-2.2	0.0	0.0	0.0	0.0	1.0	-7.8	-110.8
29	4854.62	5821.78	2.00	1	4000	58.7	-44.3	0.0	0.0	68.0	23.2	-2.2	0.0	0.0	0.0	0.0	1.0	-31.4	-134.4
30	4854.62	5821.78	2.00	1	8000	51.7	-51.3	0.0	0.0	68.0	82.8	-2.2	0.0	0.0	0.0	0.0	1.0	-98.0	-201.0
31	4812.43	5757.63	2.00	1	1000	67.6	-35.4	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	0.0	0.0	1.0	-1.1	-104.1
32	4812.43	5757.63	2.00	1	2000	64.6	-38.4	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	0.0	0.0	1.0	-8.0	-111.0
33	4812.43	5757.63	2.00	1	4000	57.4	-45.6	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	0.0	0.0	1.0	-30.3	-133.3
34	4812.43	5757.63	2.00	1	8000	50.4	-52.6	0.0	0.0	67.3	76.2	-2.0	0.0	0.0	0.0	0.0	1.0	-92.1	-195.1
35	4827.26	5698.34	2.00	1	1000	70.3	-32.7	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	0.0	0.0	1.0	1.7	-101.3
36	4827.26	5698.34	2.00	1	2000	67.3	-35.7	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	0.0	0.0	1.0	-5.3	-108.3
37	4827.26	5698.34	2.00	1	4000	60.1	-42.9	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	0.0	0.0	1.0	-27.5	-130.5
38	4827.26	5698.34	2.00	1	8000	53.1	-49.9	0.0	0.0	67.3	76.2	-2.0	0.0	0.0	0.0	0.0	1.0	-89.3	-192.4
39	4821.78	5714.43	2.00	1	1000	66.4	-36.6	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	0.0	0.0	1.0	-2.2	-105.2
40	4821.78	5714.43	2.00	1	2000	63.4	-39.6	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	0.0	0.0	1.0	-9.2	-112.2
41	4821.78	5714.43	2.00	1	4000	56.2	-46.8	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	0.0	0.0	1.0	-31.4	-134.4
42	4821.78	5714.43	2.00	1	8000	49.2	-53.8	0.0	0.0	67.3	76.3	-2.0	0.0	0.0	0.0	0.0	1.0	-93.3	-196.3
43	4814.55	5735.67	2.00	1	1000	72.0	-31.1	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	0.0	0.0	1.0	3.3	-99.8
44	4814.55	5735.67	2.00	1	2000	69.0	-34.1	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	0.0	0.0	1.0	-3.7	-106.7
45	4814.55	5735.67	2.00	1	4000	61.8	-41.3	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	0.0	0.0	1.0	-26.0	-129.0
46	4814.55	5735.67	2.00	1	8000	54.8	-48.3	0.0	0.0	67.3	76.5	-2.0	0.0	0.0	0.0	0.0	1.0	-88.1	-191.1

Line Source, ISO 9613, Name: "Water Truck", ID: "S10"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	5024.73	5913.00	2.00	0	32	81.5	-21.5	0.0	0.0	69.0	0.0	-5.3	0.0	0.0	0.0	0.0	-0.0	17.7	-85.3
2	5024.73	5913.00	2.00	0	63	84.7	-18.3	0.0	0.0	69.0	0.1	-5.3	0.0	0.0	0.0	0.0	-0.0	20.9	-82.2
3	5024.73	5913.00	2.00	0	125	88.7	-14.3	0.0	0.0	69.0	0.3	1.2	0.0	0.0	0.0	0.0	-0.0	18.1	-84.9
4	5024.73	5913.00	2.00	0	250	87.7	-15.3	0.0	0.0	69.0	0.8	-1.1	0.0	0.0	0.0	0.0	-0.0	18.9	-84.1
5	5024.73	5913.00	2.00	0	500	84.6	-18.4	0.0	0.0	69.0	1.5	-2.4	0.0	0.0	0.0	0.0	-0.0	16.5	-86.5
6	5024.73	5913.00	2.00	0	1000	80.7	-22.3	0.0	0.0	69.0	2.9	-2.4	0.0	0.0	0.0	0.0	-0.0	11.2	-91.8
7	5024.73	5913.00	2.00	0	2000	77.7	-25.3	0.0	0.0	69.0	7.7	-2.4	0.0	0.0	0.0	0.0	-0.0	3.4	-99.6
8	5024.73	5913.00	2.00	0	4000	70.5	-32.5	0.0	0.0	69.0	26.1	-2.4	0.0	0.0	0.0	0.0	-0.0	-22.2	-125.2
9	5024.73	5913.00	2.00	0	8000	63.5	-39.5	0.0	0.0	69.0	93.2	-2.4	0.0	0.0	0.0	0.0	-0.0	-96.3	-199.3

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (m)	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	760.00
Reference Time Night (min)	760.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	1
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (m/s)	3.0
Roads (???)	
Railways (???)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver
Name: POR1
ID: POR1
X: 4326.96
Y: 5526.83
Z: 4.50

Point Source, ISO 9613, Name: "Generator", ID: "S2"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4865.59	5742.56	2.07	0	32	44.6	44.6	0.0	0.0	66.3	0.0	-5.0	0.0	0.0	4.5	0.0	-0.0	-21.2	-21.2
2	4865.59	5742.56	2.07	0	63	65.8	65.8	0.0	0.0	66.3	0.1	-5.0	0.0	0.0	4.8	0.0	-0.0	-0.3	-0.3
3	4865.59	5742.56	2.07	0	125	86.9	86.9	0.0	0.0	66.3	0.2	1.8	0.0	0.0	3.3	0.0	-0.0	15.4	15.4
4	4865.59	5742.56	2.07	0	250	91.4	91.4	0.0	0.0	66.3	0.6	-0.3	0.0	0.0	5.4	0.0	-0.0	19.4	19.4
5	4865.59	5742.56	2.07	0	500	92.8	92.8	0.0	0.0	66.3	1.1	-1.7	0.0	0.0	6.0	0.0	-0.0	21.1	21.1
6	4865.59	5742.56	2.07	0	1000	91.0	91.0	0.0	0.0	66.3	2.1	-1.7	0.0	0.0	7.3	0.0	-0.0	17.0	17.0
7	4865.59	5742.56	2.07	0	2000	94.2	94.2	0.0	0.0	66.3	5.6	-1.7	0.0	0.0	9.7	0.0	-0.0	14.3	14.3
8	4865.59	5742.56	2.07	0	4000	98.0	98.0	0.0	0.0	66.3	19.0	-1.7	0.0	0.0	13.2	0.0	-0.0	1.2	1.2
9	4865.59	5742.56	2.07	0	8000	92.9	92.9	0.0	0.0	66.3	67.8	-1.7	0.0	0.0	16.6	0.0	-0.0	-56.1	-56.1
10	4865.59	5742.56	2.07	1	125	86.9	86.9	0.0	0.0	66.6	0.3	1.7	0.0	0.0	3.2	0.0	1.0	14.1	14.1
11	4865.59	5742.56	2.07	1	250	91.4	91.4	0.0	0.0	66.6	0.6	-0.4	0.0	0.0	5.1	0.0	1.0	18.5	18.5
12	4865.59	5742.56	2.07	1	500	92.8	92.8	0.0	0.0	66.6	1.2	-1.8	0.0	0.0	5.3	0.0	1.0	20.5	20.5
13	4865.59	5742.56	2.07	1	1000	91.0	91.0	0.0	0.0	66.6	2.2	-1.8	0.0	0.0	6.0	0.0	1.0	17.0	17.0
14	4865.59	5742.56	2.07	1	2000	94.2	94.2	0.0	0.0	66.6	5.8	-1.8	0.0	0.0	7.5	0.0	1.0	15.1	15.1
15	4865.59	5742.56	2.07	1	4000	98.0	98.0	0.0	0.0	66.6	19.8	-1.8	0.0	0.0	10.2	0.0	1.0	2.3	2.3
16	4865.59	5742.56	2.07	1	8000	92.9	92.9	0.0	0.0	66.6	70.5	-1.8	0.0	0.0	13.2	0.0	1.0	-56.6	-56.6

Point Source, ISO 9613, Name: "Tub Grinder", ID: "S3B"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4974.63	5834.61	2.50	0	32	65.5	-88.0	0.0	0.0	68.1	0.0	-5.1	0.0	0.0	6.0	0.0	-0.0	-3.5	-88.0
2	4974.63	5834.61	2.50	0	63	90.7	-88.0	0.0	0.0	68.1	0.1	-5.1	0.0	0.0	7.1	0.0	-0.0	20.5	-88.0
3	4974.63	5834.61	2.50	0	125	107.0	-88.0	0.0	0.0	68.1	0.3	1.5	0.0	0.0	7.1	0.0	-0.0	30.0	-88.0
4	4974.63	5834.61	2.50	0	250	111.2	-88.0	0.0	0.0	68.1	0.8	-0.8	0.0	0.0	10.6	0.0	-0.0	32.5	-88.0
5	4974.63	5834.61	2.50	0	500	116.7	-88.0	0.0	0.0	68.1	1.4	-2.2	0.0	0.0	13.0	0.0	-0.0	36.3	-88.0
6	4974.63	5834.61	2.50	0	1000	116.8	-88.0	0.0	0.0	68.1	2.6	-2.2	0.0	0.0	15.7	0.0	-0.0	32.5	-88.0
7	4974.63	5834.61	2.50	0	2000	114.0	-88.0	0.0	0.0	68.1	6.9	-2.2	0.0	0.0	18.5	0.0	-0.0	22.6	-88.0
8	4974.63	5834.61	2.50	0	4000	110.4	-88.0	0.0	0.0	68.1	23.5	-2.2	0.0	0.0	21.4	0.0	-0.0	-0.5	-88.0
9	4974.63	5834.61	2.50	0	8000	104.5	-88.0	0.0	0.0	68.1	83.8	-2.2	0.0	0.0	24.4	0.0	-0.0	-69.7	-88.0

Point Source, ISO 9613, Name: "Screener", ID: "S7"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4944.71	5862.34	3.00	0	32	68.7	-88.0	0.0	0.0	67.9	0.0	-5.0	0.0	0.0	3.1	0.0	-0.0	2.6	-88.0
2	4944.71	5862.34	3.00	0	63	87.8	-88.0	0.0	0.0	67.9	0.1	-5.0	0.0	0.0	3.9	0.0	-0.0	20.9	-88.0
3	4944.71	5862.34	3.00	0	125	102.2	-88.0	0.0	0.0	67.9	0.3	1.6	0.0	0.0	3.6	0.0	-0.0	28.8	-88.0
4	4944.71	5862.34	3.00	0	250	108.0	-88.0	0.0	0.0	67.9	0.7	-0.7	0.0	0.0	6.0	0.0	-0.0	33.9	-88.0
5	4944.71	5862.34	3.00	0	500	111.8	-88.0	0.0	0.0	67.9	1.4	-2.0	0.0	0.0	7.6	0.0	-0.0	36.9	-88.0
6	4944.71	5862.34	3.00	0	1000	111.3	-88.0	0.0	0.0	67.9	2.6	-2.0	0.0	0.0	9.6	0.0	-0.0	33.2	-88.0
7	4944.71	5862.34	3.00	0	2000	109.2	-88.0	0.0	0.0	67.9	6.8	-2.0	0.0	0.0	12.0	0.0	-0.0	24.5	-88.0
8	4944.71	5862.34	3.00	0	4000	104.2	-88.0	0.0	0.0	67.9	23.0	-2.0	0.0	0.0	14.6	0.0	-0.0	0.6	-88.0
9	4944.71	5862.34	3.00	0	8000	99.1	-88.0	0.0	0.0	67.9	82.2	-2.0	0.0	0.0	17.4	0.0	-0.0	-66.4	-88.0

Point Source, ISO 9613, Name: "Shredder", ID: "S8"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4952.53	5841.84	3.00	0	32	92.8	-88.0	0.0	0.0	67.9	0.0	-5.0	0.0	0.0	6.5	0.0	-0.0	23.4	-88.0
2	4952.53	5841.84	3.00	0	63	103.8	-88.0	0.0	0.0	67.9	0.1	-5.0	0.0	0.0	7.9	0.0	-0.0	32.9	-88.0
3	4952.53	5841.84	3.00	0	125	109.1	-88.0	0.0	0.0	67.9	0.3	1.6	0.0	0.0	8.2	0.0	-0.0	31.1	-88.0
4	4952.53	5841.84	3.00	0	250	109.0	-88.0	0.0	0.0	67.9	0.7	-0.7	0.0	0.0	12.0	0.0	-0.0	28.9	-88.0
5	4952.53	5841.84	3.00	0	500	105.1	-88.0	0.0	0.0	67.9	1.4	-2.0	0.0	0.0	14.6	0.0	-0.0	23.2	-88.0
6	4952.53	5841.84	3.00	0	1000	105.5	-88.0	0.0	0.0	67.9	2.6	-2.0	0.0	0.0	17.4	0.0	-0.0	19.6	-88.0
7	4952.53	5841.84	3.00	0	2000	100.9	-88.0	0.0	0.0	67.9	6.8	-2.0	0.0	0.0	20.3	0.0	-0.0	7.9	-88.0

Point Source, ISO 9613, Name: "Shredder", ID: "S8"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
8	4952.53	5841.84	3.00	0	4000	99.3	-88.0	0.0	0.0	67.9	22.9	-2.0	0.0	0.0	23.3	0.0	-0.0	-12.8	-88.0
9	4952.53	5841.84	3.00	0	8000	95.0	-88.0	0.0	0.0	67.9	81.9	-2.0	0.0	0.0	25.0	0.0	-0.0	-77.8	-88.0

Point Source, ISO 9613, Name: "Front End Loader for Active windrows", ID: "S14"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	5021.36	5828.11	3.00	0	32	61.0	61.0	0.0	0.0	68.6	0.0	-5.1	0.0	0.0	4.8	0.0	-0.0	-7.3	-7.3
2	5021.36	5828.11	3.00	0	63	71.1	71.1	0.0	0.0	68.6	0.1	-5.1	0.0	0.0	4.8	0.0	-0.0	2.8	2.8
3	5021.36	5828.11	3.00	0	125	87.6	87.6	0.0	0.0	68.6	0.3	1.4	0.0	0.0	3.4	0.0	-0.0	13.9	13.9
4	5021.36	5828.11	3.00	0	250	96.5	96.5	0.0	0.0	68.6	0.8	-0.8	0.0	0.0	4.8	0.0	-0.0	23.2	23.2
5	5021.36	5828.11	3.00	0	500	100.1	100.1	0.0	0.0	68.6	1.5	-2.2	0.0	0.0	4.8	0.0	-0.0	27.4	27.4
6	5021.36	5828.11	3.00	0	1000	98.8	98.8	0.0	0.0	68.6	2.8	-2.2	0.0	0.0	4.9	0.0	-0.0	24.8	24.8
7	5021.36	5828.11	3.00	0	2000	100.5	100.5	0.0	0.0	68.6	7.3	-2.2	0.0	0.0	5.0	0.0	-0.0	21.8	21.8
8	5021.36	5828.11	3.00	0	4000	96.7	96.7	0.0	0.0	68.6	24.8	-2.2	0.0	0.0	5.3	0.0	-0.0	0.3	0.3
9	5021.36	5828.11	3.00	0	8000	88.3	88.3	0.0	0.0	68.6	88.5	-2.2	0.0	0.0	5.7	0.0	-0.0	-72.3	-72.3

Point Source, ISO 9613, Name: "Front End Loader for Finished Compost", ID: "S13"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4886.34	5709.76	3.00	0	32	61.0	61.0	0.0	0.0	66.4	0.0	-4.8	0.0	0.0	3.5	0.0	-0.0	-4.1	-4.1
2	4886.34	5709.76	3.00	0	63	71.1	71.1	0.0	0.0	66.4	0.1	-4.8	0.0	0.0	4.0	0.0	-0.0	5.5	5.5
3	4886.34	5709.76	3.00	0	125	87.6	87.6	0.0	0.0	66.4	0.2	1.9	0.0	0.0	2.7	0.0	-0.0	16.4	16.4
4	4886.34	5709.76	3.00	0	250	96.5	96.5	0.0	0.0	66.4	0.6	-0.2	0.0	0.0	4.8	0.0	-0.0	24.9	24.9
5	4886.34	5709.76	3.00	0	500	100.1	100.1	0.0	0.0	66.4	1.1	-1.6	0.0	0.0	5.2	0.0	-0.0	28.9	28.9
6	4886.34	5709.76	3.00	0	1000	98.8	98.8	0.0	0.0	66.4	2.1	-1.6	0.0	0.0	6.0	0.0	-0.0	25.8	25.8
7	4886.34	5709.76	3.00	0	2000	100.5	100.5	0.0	0.0	66.4	5.7	-1.6	0.0	0.0	7.6	0.0	-0.0	22.4	22.4
8	4886.34	5709.76	3.00	0	4000	96.7	96.7	0.0	0.0	66.4	19.3	-1.6	0.0	0.0	10.4	0.0	-0.0	2.2	2.2
9	4886.34	5709.76	3.00	0	8000	88.3	88.3	0.0	0.0	66.4	68.8	-1.6	0.0	0.0	13.4	0.0	-0.0	-58.8	-58.8
10	4886.34	5709.76	3.00	1	32	61.0	61.0	0.0	0.0	66.5	0.0	-4.9	0.0	0.0	4.8	0.0	1.0	-6.4	-6.4
11	4886.34	5709.76	3.00	1	63	71.1	71.1	0.0	0.0	66.5	0.1	-4.9	0.0	0.0	4.8	0.0	1.0	3.6	3.6
12	4886.34	5709.76	3.00	1	125	87.6	87.6	0.0	0.0	66.5	0.2	1.9	0.0	0.0	3.0	0.0	1.0	15.0	15.0
13	4886.34	5709.76	3.00	1	250	96.5	96.5	0.0	0.0	66.5	0.6	-0.2	0.0	0.0	5.0	0.0	1.0	23.6	23.6
14	4886.34	5709.76	3.00	1	500	100.1	100.1	0.0	0.0	66.5	1.1	-1.6	0.0	0.0	5.3	0.0	1.0	27.8	27.8
15	4886.34	5709.76	3.00	1	1000	98.8	98.8	0.0	0.0	66.5	2.2	-1.6	0.0	0.0	5.9	0.0	1.0	24.8	24.8
16	4886.34	5709.76	3.00	1	2000	100.5	100.5	0.0	0.0	66.5	5.7	-1.6	0.0	0.0	7.4	0.0	1.0	21.5	21.5
17	4886.34	5709.76	3.00	1	4000	96.7	96.7	0.0	0.0	66.5	19.4	-1.6	0.0	0.0	10.0	0.0	1.0	1.4	1.4
18	4886.34	5709.76	3.00	1	8000	88.3	88.3	0.0	0.0	66.5	69.2	-1.6	0.0	0.0	13.0	0.0	1.0	-59.7	-59.7

Line Source, ISO 9613, Name: "SSO and Leaf and Yard Waste Trucks", ID: "S11"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4832.98	5790.35	2.00	0	32	80.1	-25.9	0.0	0.0	66.1	0.0	-5.0	0.0	0.0	3.9	0.0	-0.0	15.0	-91.0
2	4832.98	5790.35	2.00	0	63	83.3	-22.7	0.0	0.0	66.1	0.1	-5.0	0.0	0.0	4.5	0.0	-0.0	17.6	-88.4
3	4832.98	5790.35	2.00	0	125	87.3	-18.7	0.0	0.0	66.1	0.2	1.8	0.0	0.0	3.3	0.0	-0.0	15.9	-90.2
4	4832.98	5790.35	2.00	0	250	86.3	-19.7	0.0	0.0	66.1	0.6	-0.3	0.0	0.0	5.6	0.0	-0.0	14.2	-91.8
5	4832.98	5790.35	2.00	0	500	83.2	-22.8	0.0	0.0	66.1	1.1	-1.6	0.0	0.0	6.7	0.0	-0.0	11.0	-95.1
6	4832.98	5790.35	2.00	0	1000	79.3	-26.7	0.0	0.0	66.1	2.1	-1.6	0.0	0.0	8.4	0.0	-0.0	4.3	-101.7
7	4832.98	5790.35	2.00	0	2000	76.3	-29.7	0.0	0.0	66.1	5.5	-1.6	0.0	0.0	11.4	0.0	-0.0	-5.1	-111.1
8	4832.98	5790.35	2.00	0	4000	69.1	-36.9	0.0	0.0	66.1	18.7	-1.6	0.0	0.0	15.2	0.0	-0.0	-29.3	-135.3
9	4832.98	5790.35	2.00	0	8000	62.1	-43.9	0.0	0.0	66.1	66.7	-1.6	0.0	0.0	18.8	0.0	-0.0	-87.8	-193.8
10	4820.28	5714.95	2.00	0	32	79.1	-26.9	0.0	0.0	65.5	0.0	-4.9	0.0	0.0	5.3	0.0	-0.0	13.3	-92.8
11	4820.28	5714.95	2.00	0	63	82.3	-23.7	0.0	0.0	65.5	0.1	-4.9	0.0	0.0	6.0	0.0	-0.0	15.6	-90.4
12	4820.28	5714.95	2.00	0	125	86.3	-19.7	0.0	0.0	65.5	0.2	3.1	0.0	0.0	4.2	0.0	-0.0	13.3	-92.7
13	4820.28	5714.95	2.00	0	250	85.3	-20.7	0.0	0.0	65.5	0.6	1.8	0.0	0.0	7.1	0.0	-0.0	10.4	-95.7
14	4820.28	5714.95	2.00	0	500	82.2	-23.8	0.0	0.0	65.5	1.0	-0.6	0.0	0.0	11.1	0.0	-0.0	5.1	-100.9
15	4820.28	5714.95	2.00	0	1000	78.3	-27.7	0.0	0.0	65.5	1.9	-1.1	0.0	0.0	14.1	0.0	-0.0	-2.1	-108.2
16	4820.28	5714.95	2.00	0	2000	75.3	-30.7	0.0	0.0	65.5	5.1	-1.1	0.0	0.0	18.1	0.0	-0.0	-12.3	-118.3
17	4820.28	5714.95	2.00	0	4000	68.1	-37.9	0.0	0.0	65.5	17.3	-1.1	0.0	0.0	22.4	0.0	-0.0	-36.0	-142.0
18	4820.28	5714.95	2.00	0	8000	61.1	-44.9	0.0	0.0	65.5	61.7	-1.1	0.0	0.0	24.9	0.0	-0.0	-89.8	-195.9
19	4886.08	5806.15	2.00	0	32	76.9	-29.1	0.0	0.0	66.9	0.0	-5.1	0.0	0.0	3.9	0.0	-0.0	11.1	-94.9
20	4886.08	5806.15	2.00	0	63	80.1	-25.9	0.0	0.0	66.9	0.1	-5.1	0.0	0.0	4.3	0.0	-0.0	13.9	-92.1
21	4886.08	5806.15	2.00	0	125	84.1	-21.9	0.0	0.0	66.9	0.3	1.6	0.0	0.0	3.0	0.0	-0.0	12.3	-93.7
22	4886.08	5806.15	2.00	0	250	83.1	-22.9	0.0	0.0	66.9	0.7	-0.5	0.0	0.0	4.8	0.0	-0.0	11.3	-94.7

Line Source, ISO 9613, Name: "SSO and Leaf and Yard Waste Trucks", ID: "S11"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
23	4886.08	5806.15	2.00	0	500	80.0	-26.0	0.0	0.0	66.9	1.2	-1.9	0.0	0.0	5.0	0.0	-0.0	8.8	-97.2
24	4886.08	5806.15	2.00	0	1000	76.1	-29.9	0.0	0.0	66.9	2.3	-1.9	0.0	0.0	5.4	0.0	-0.0	3.4	-102.6
25	4886.08	5806.15	2.00	0	2000	73.1	-32.9	0.0	0.0	66.9	6.0	-1.9	0.0	0.0	6.3	0.0	-0.0	-4.3	-110.3
26	4886.08	5806.15	2.00	0	4000	65.9	-40.1	0.0	0.0	66.9	20.5	-1.9	0.0	0.0	8.2	0.0	-0.0	-27.8	-133.9
27	4886.08	5806.15	2.00	0	8000	58.9	-47.1	0.0	0.0	66.9	73.0	-1.9	0.0	0.0	10.7	0.0	-0.0	-89.9	-195.9
28	4894.55	5784.72	2.00	0	32	56.4	-49.6	0.0	0.0	66.9	0.0	-5.1	0.0	0.0	5.9	0.0	-0.0	-11.3	-117.3
29	4894.55	5784.72	2.00	0	63	59.6	-46.4	0.0	0.0	66.9	0.1	-5.1	0.0	0.0	7.2	0.0	-0.0	-9.5	-115.5
30	4894.55	5784.72	2.00	0	125	63.6	-42.4	0.0	0.0	66.9	0.3	1.6	0.0	0.0	7.2	0.0	-0.0	-12.4	-118.4
31	4894.55	5784.72	2.00	0	250	62.6	-43.4	0.0	0.0	66.9	0.7	-0.5	0.0	0.0	11.0	0.0	-0.0	-15.5	-121.5
32	4894.55	5784.72	2.00	0	500	59.5	-46.5	0.0	0.0	66.9	1.2	-1.9	0.0	0.0	13.5	0.0	-0.0	-20.2	-126.2
33	4894.55	5784.72	2.00	0	1000	55.6	-50.4	0.0	0.0	66.9	2.3	-1.9	0.0	0.0	16.2	0.0	-0.0	-27.9	-133.9
34	4894.55	5784.72	2.00	0	2000	52.6	-53.4	0.0	0.0	66.9	6.0	-1.9	0.0	0.0	19.1	0.0	-0.0	-37.5	-143.5
35	4894.55	5784.72	2.00	0	4000	45.4	-60.6	0.0	0.0	66.9	20.4	-1.9	0.0	0.0	22.0	0.0	-0.0	-62.0	-168.1
36	4894.55	5784.72	2.00	0	8000	38.4	-67.6	0.0	0.0	66.9	72.9	-1.9	0.0	0.0	25.0	0.0	-0.0	-124.4	-230.5
37	4858.38	5790.35	2.00	0	32	76.4	-29.6	0.0	0.0	66.5	0.0	-5.0	0.0	0.0	4.1	0.0	-0.0	10.8	-95.2
38	4858.38	5790.35	2.00	0	63	79.6	-26.4	0.0	0.0	66.5	0.1	-5.0	0.0	0.0	4.5	0.0	-0.0	13.6	-92.4
39	4858.38	5790.35	2.00	0	125	83.6	-22.4	0.0	0.0	66.5	0.2	1.7	0.0	0.0	3.1	0.0	-0.0	12.0	-94.0
40	4858.38	5790.35	2.00	0	250	82.6	-23.4	0.0	0.0	66.5	0.6	-0.4	0.0	0.0	5.1	0.0	-0.0	10.8	-95.3
41	4858.38	5790.35	2.00	0	500	79.5	-26.5	0.0	0.0	66.5	1.1	-1.8	0.0	0.0	5.6	0.0	-0.0	8.0	-98.0
42	4858.38	5790.35	2.00	0	1000	75.6	-30.4	0.0	0.0	66.5	2.2	-1.8	0.0	0.0	6.6	0.0	-0.0	2.1	-103.9
43	4858.38	5790.35	2.00	0	2000	72.6	-33.4	0.0	0.0	66.5	5.7	-1.8	0.0	0.0	8.6	0.0	-0.0	-6.5	-112.5
44	4858.38	5790.35	2.00	0	4000	65.4	-40.6	0.0	0.0	66.5	19.4	-1.8	0.0	0.0	11.8	0.0	-0.0	-30.6	-136.6
45	4858.38	5790.35	2.00	0	8000	58.4	-47.6	0.0	0.0	66.5	69.3	-1.8	0.0	0.0	15.1	0.0	-0.0	-90.7	-196.7
46	4893.02	5784.03	2.00	0	32	65.6	-40.4	0.0	0.0	66.9	0.0	-5.1	0.0	0.0	6.0	0.0	-0.0	-2.3	-108.3
47	4893.02	5784.03	2.00	0	63	68.8	-37.2	0.0	0.0	66.9	0.1	-5.1	0.0	0.0	7.4	0.0	-0.0	-0.5	-106.5
48	4893.02	5784.03	2.00	0	125	72.8	-33.2	0.0	0.0	66.9	0.3	1.6	0.0	0.0	7.6	0.0	-0.0	-3.5	-109.6
49	4893.02	5784.03	2.00	0	250	71.8	-34.2	0.0	0.0	66.9	0.7	-0.5	0.0	0.0	11.4	0.0	-0.0	-6.7	-112.7
50	4893.02	5784.03	2.00	0	500	68.7	-37.3	0.0	0.0	66.9	1.2	-1.9	0.0	0.0	14.0	0.0	-0.0	-11.5	-117.5
51	4893.02	5784.03	2.00	0	1000	64.8	-41.2	0.0	0.0	66.9	2.3	-1.9	0.0	0.0	16.7	0.0	-0.0	-19.2	-125.2
52	4893.02	5784.03	2.00	0	2000	61.8	-44.2	0.0	0.0	66.9	6.0	-1.9	0.0	0.0	19.6	0.0	-0.0	-28.8	-134.8
53	4893.02	5784.03	2.00	0	4000	54.6	-51.4	0.0	0.0	66.9	20.4	-1.9	0.0	0.0	22.5	0.0	-0.0	-53.3	-159.3
54	4893.02	5784.03	2.00	0	8000	47.6	-58.4	0.0	0.0	66.9	72.7	-1.9	0.0	0.0	25.0	0.0	-0.0	-115.1	-221.1
55	4882.97	5780.85	2.00	0	32	72.8	-33.2	0.0	0.0	66.7	0.0	-5.0	0.0	0.0	4.3	0.0	-0.0	6.8	-99.3
56	4882.97	5780.85	2.00	0	63	76.0	-30.0	0.0	0.0	66.7	0.1	-5.0	0.0	0.0	4.6	0.0	-0.0	9.7	-96.4
57	4882.97	5780.85	2.00	0	125	80.0	-26.0	0.0	0.0	66.7	0.3	1.7	0.0	0.0	3.1	0.0	-0.0	8.2	-97.8
58	4882.97	5780.85	2.00	0	250	79.0	-27.0	0.0	0.0	66.7	0.6	-0.5	0.0	0.0	4.9	0.0	-0.0	7.2	-98.9
59	4882.97	5780.85	2.00	0	500	75.9	-30.1	0.0	0.0	66.7	1.2	-1.8	0.0	0.0	5.2	0.0	-0.0	4.6	-101.4
60	4882.97	5780.85	2.00	0	1000	72.0	-34.0	0.0	0.0	66.7	2.2	-1.8	0.0	0.0	5.7	0.0	-0.0	-0.9	-106.9
61	4882.97	5780.85	2.00	0	2000	69.0	-37.0	0.0	0.0	66.7	5.9	-1.8	0.0	0.0	7.0	0.0	-0.0	-8.8	-114.9
62	4882.97	5780.85	2.00	0	4000	61.8	-44.2	0.0	0.0	66.7	20.0	-1.8	0.0	0.0	9.5	0.0	-0.0	-32.6	-138.6
63	4882.97	5780.85	2.00	0	8000	54.8	-51.2	0.0	0.0	66.7	71.5	-1.8	0.0	0.0	12.3	0.0	-0.0	-93.9	-199.9
64	4868.17	5828.98	2.00	0	32	73.2	-32.8	0.0	0.0	66.8	0.0	-5.1	0.0	0.0	2.5	0.0	-0.0	8.9	-97.1
65	4868.17	5828.98	2.00	0	63	76.4	-29.6	0.0	0.0	66.8	0.1	-5.1	0.0	0.0	2.9	0.0	-0.0	11.6	-94.4
66	4868.17	5828.98	2.00	0	125	80.4	-25.6	0.0	0.0	66.8	0.3	1.7	0.0	0.0	2.2	0.0	-0.0	9.4	-96.6
67	4868.17	5828.98	2.00	0	250	79.4	-26.6	0.0	0.0	66.8	0.7	-0.5	0.0	0.0	4.0	0.0	-0.0	8.3	-97.7
68	4868.17	5828.98	2.00	0	500	76.3	-29.7	0.0	0.0	66.8	1.2	-1.9	0.0	0.0	4.6	0.0	-0.0	5.5	-100.5
69	4868.17	5828.98	2.00	0	1000	72.4	-33.6	0.0	0.0	66.8	2.3	-1.9	0.0	0.0	5.3	0.0	-0.0	-0.1	-106.2
70	4868.17	5828.98	2.00	0	2000	69.4	-36.6	0.0	0.0	66.8	6.0	-1.9	0.0	0.0	6.5	0.0	-0.0	-8.1	-114.1
71	4868.17	5828.98	2.00	0	4000	62.2	-43.8	0.0	0.0	66.8	20.3	-1.9	0.0	0.0	8.8	0.0	-0.0	-31.9	-137.9
72	4868.17	5828.98	2.00	0	8000	55.2	-50.8	0.0	0.0	66.8	72.5	-1.9	0.0	0.0	11.5	0.0	-0.0	-93.8	-199.8
73	4811.39	5756.52	2.00	1	1000	71.3	-34.7	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	5.0	0.0	1.0	-2.4	-108.4
74	4811.39	5756.52	2.00	1	2000	68.3	-37.7	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	5.4	0.0	1.0	-9.7	-115.7
75	4811.39	5756.52	2.00	1	4000	61.1	-44.9	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	6.3	0.0	1.0	-32.9	-138.9
76	4811.39	5756.52	2.00	1	8000	54.1	-51.9	0.0	0.0	67.3	76.3	-2.0	0.0	0.0	7.8	0.0	1.0	-96.3	-202.3
77	4854.24	5823.67	2.00	1	2000	68.7	-37.4	0.0	0.0	68.0	6.8	-2.1	0.0	0.0	0.0	0.0	1.0	-5.0	-111.0
78	4854.24	5823.67	2.00	1	4000	61.5	-44.6	0.0	0.0	68.0	23.2	-2.1	0.0	0.0	0.0	0.0	1.0	-28.5	-134.5
79	4854.24	5823.67	2.00	1	8000	54.5	-51.6	0.0	0.0	68.0	82.6	-2.1	0.0	0.0	0.0	0.0	1.0	-94.9	-201.0
80	4826.48	5698.12	2.00	1	1000	73.4	-32.7	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	5.0	0.0	1.0	-0.3	-106.3
81	4826.48	5698.12	2.00	1	2000	70.4	-35.7	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	5.4	0.0	1.0	-7.6	-113.6
82	4826.48	5698.12	2.00	1	4000	63.2	-42.9	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	6.3	0.0	1.0	-30.8	-136.8
83	4826.48	5698.12	2.00	1	8000	56.2	-49.9	0.0	0.0	67.3	76.3	-2.0	0.0	0.0	7.8	0.0	1.0	-94.2	-200.2
84	4820.59	5714.11	2.00	1	1000	69.5	-36.5	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	5.0	0.0	1.0	-4.2	-110.2
85	4820.59	5714.11	2.00	1	2000	66.5	-39.5	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	5.3	0.0	1.0	-11.5	-117.5

Line Source, ISO 9613, Name: "SSO and Leaf and Yard Waste Trucks", ID: "S11"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
86	4820.59	5714.11	2.00	1	4000	59.3	-46.7	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	6.2	0.0	1.0	-34.7	-140.7
87	4820.59	5714.11	2.00	1	8000	52.3	-53.7	0.0	0.0	67.3	76.4	-2.0	0.0	0.0	7.7	0.0	1.0	-98.1	-204.2
88	4813.09	5734.44	2.00	1	1000	74.8	-31.3	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	5.0	0.0	1.0	1.1	-105.0
89	4813.09	5734.44	2.00	1	2000	71.8	-34.3	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	5.3	0.0	1.0	-6.2	-112.2
90	4813.09	5734.44	2.00	1	4000	64.6	-41.5	0.0	0.0	67.3	21.5	-2.0	0.0	0.0	6.1	0.0	1.0	-29.4	-135.4
91	4813.09	5734.44	2.00	1	8000	57.6	-48.5	0.0	0.0	67.3	76.7	-2.0	0.0	0.0	7.5	0.0	1.0	-93.0	-199.0
92	4855.69	5792.38	2.00	1	4000	60.6	-45.5	0.0	0.0	68.4	24.2	-2.3	0.0	0.0	0.0	0.0	1.0	-30.7	-136.7
93	4855.69	5792.38	2.00	1	8000	53.6	-52.5	0.0	0.0	68.4	86.2	-2.3	0.0	0.0	0.0	0.0	1.0	-99.8	-205.8
94	4858.96	5830.52	2.00	1	2000	54.6	-51.4	0.0	0.0	67.9	6.8	-2.1	0.0	0.0	0.0	0.0	1.0	-18.9	-124.9
95	4858.96	5830.52	2.00	1	4000	47.4	-58.6	0.0	0.0	67.9	22.9	-2.1	0.0	0.0	0.0	0.0	1.0	-42.3	-148.3
96	4858.96	5830.52	2.00	1	8000	40.4	-65.6	0.0	0.0	67.9	81.8	-2.1	0.0	0.0	0.0	0.0	1.0	-108.1	-214.1

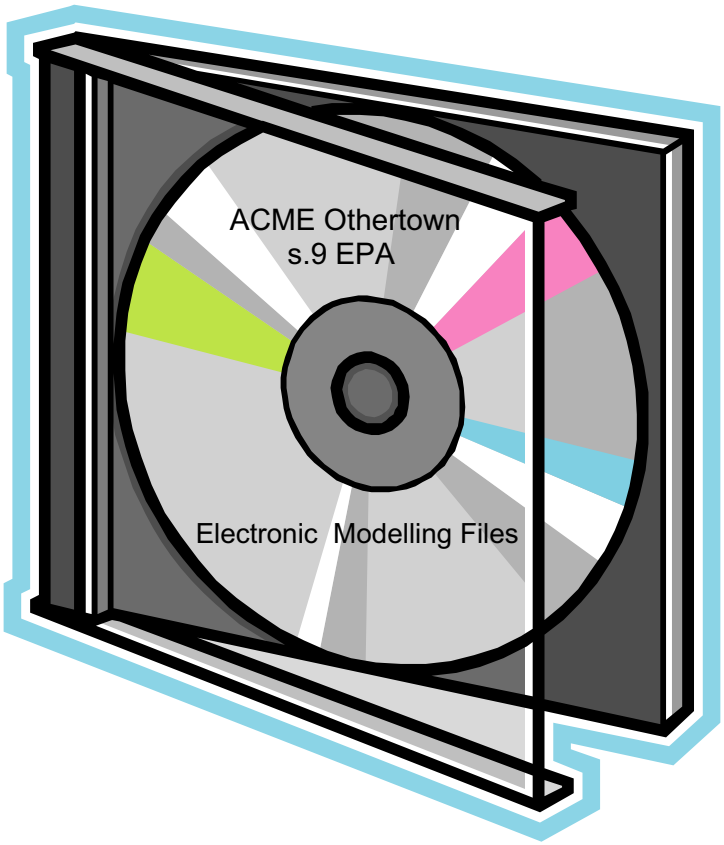
Line Source, ISO 9613, Name: "Finished Compost Trucks", ID: "S12"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	4834.30	5790.88	2.00	0	32	77.0	-26.0	0.0	0.0	66.1	0.0	-5.0	0.0	0.0	3.9	0.0	-0.0	11.9	-91.2
2	4834.30	5790.88	2.00	0	63	80.2	-22.8	0.0	0.0	66.1	0.1	-5.0	0.0	0.0	4.5	0.0	-0.0	14.5	-88.5
3	4834.30	5790.88	2.00	0	125	84.2	-18.8	0.0	0.0	66.1	0.2	1.8	0.0	0.0	3.3	0.0	-0.0	12.7	-90.3
4	4834.30	5790.88	2.00	0	250	83.2	-19.8	0.0	0.0	66.1	0.6	-0.3	0.0	0.0	5.6	0.0	-0.0	11.1	-91.9
5	4834.30	5790.88	2.00	0	500	80.1	-22.9	0.0	0.0	66.1	1.1	-1.6	0.0	0.0	6.6	0.0	-0.0	7.9	-95.1
6	4834.30	5790.88	2.00	0	1000	76.2	-26.8	0.0	0.0	66.1	2.1	-1.7	0.0	0.0	8.3	0.0	-0.0	1.3	-101.7
7	4834.30	5790.88	2.00	0	2000	73.2	-29.8	0.0	0.0	66.1	5.5	-1.7	0.0	0.0	11.2	0.0	-0.0	-8.1	-111.1
8	4834.30	5790.88	2.00	0	4000	66.0	-37.0	0.0	0.0	66.1	18.7	-1.7	0.0	0.0	15.0	0.0	-0.0	-32.3	-135.3
9	4834.30	5790.88	2.00	0	8000	59.0	-44.0	0.0	0.0	66.1	66.8	-1.7	0.0	0.0	18.5	0.0	-0.0	-90.9	-193.9
10	4821.34	5715.74	2.00	0	32	76.2	-26.8	0.0	0.0	65.5	0.0	-4.9	0.0	0.0	5.2	0.0	-0.0	10.4	-92.6
11	4821.34	5715.74	2.00	0	63	79.4	-23.6	0.0	0.0	65.5	0.1	-4.9	0.0	0.0	6.0	0.0	-0.0	12.8	-90.2
12	4821.34	5715.74	2.00	0	125	83.4	-19.6	0.0	0.0	65.5	0.2	3.0	0.0	0.0	4.1	0.0	-0.0	10.5	-92.5
13	4821.34	5715.74	2.00	0	250	82.4	-20.6	0.0	0.0	65.5	0.6	1.6	0.0	0.0	7.1	0.0	-0.0	7.6	-95.4
14	4821.34	5715.74	2.00	0	500	79.3	-23.7	0.0	0.0	65.5	1.0	-0.6	0.0	0.0	10.9	0.0	-0.0	2.5	-100.5
15	4821.34	5715.74	2.00	0	1000	75.4	-27.6	0.0	0.0	65.5	1.9	-1.1	0.0	0.0	13.9	0.0	-0.0	-4.8	-107.8
16	4821.34	5715.74	2.00	0	2000	72.4	-30.6	0.0	0.0	65.5	5.1	-1.2	0.0	0.0	17.8	0.0	-0.0	-14.9	-117.9
17	4821.34	5715.74	2.00	0	4000	65.2	-37.8	0.0	0.0	65.5	17.3	-1.2	0.0	0.0	22.2	0.0	-0.0	-38.6	-141.7
18	4821.34	5715.74	2.00	0	8000	58.2	-44.8	0.0	0.0	65.5	61.9	-1.2	0.0	0.0	24.9	0.0	-0.0	-92.9	-195.9
19	4865.26	5829.76	2.00	0	32	67.8	-35.2	0.0	0.0	66.8	0.0	-5.0	0.0	0.0	2.3	0.0	-0.0	3.7	-99.3
20	4865.26	5829.76	2.00	0	63	71.0	-32.0	0.0	0.0	66.8	0.1	-5.0	0.0	0.0	2.7	0.0	-0.0	6.4	-96.6
21	4865.26	5829.76	2.00	0	125	75.0	-28.0	0.0	0.0	66.8	0.3	1.7	0.0	0.0	2.0	0.0	-0.0	4.2	-98.8
22	4865.26	5829.76	2.00	0	250	74.0	-29.0	0.0	0.0	66.8	0.6	-0.5	0.0	0.0	3.8	0.0	-0.0	3.1	-99.9
23	4865.26	5829.76	2.00	0	500	70.9	-32.1	0.0	0.0	66.8	1.2	-1.9	0.0	0.0	4.5	0.0	-0.0	0.3	-102.8
24	4865.26	5829.76	2.00	0	1000	67.0	-36.0	0.0	0.0	66.8	2.3	-1.9	0.0	0.0	5.2	0.0	-0.0	-5.5	-108.5
25	4865.26	5829.76	2.00	0	2000	64.0	-39.0	0.0	0.0	66.8	6.0	-1.9	0.0	0.0	6.6	0.0	-0.0	-13.6	-116.6
26	4865.26	5829.76	2.00	0	4000	56.8	-46.2	0.0	0.0	66.8	20.2	-1.9	0.0	0.0	9.0	0.0	-0.0	-37.4	-140.4
27	4865.26	5829.76	2.00	0	8000	49.8	-53.2	0.0	0.0	66.8	72.2	-1.9	0.0	0.0	11.7	0.0	-0.0	-99.1	-202.1
28	4889.07	5830.82	2.00	0	32	72.9	-30.1	0.0	0.0	67.1	0.0	-5.1	0.0	0.0	3.0	0.0	-0.0	7.9	-95.1
29	4889.07	5830.82	2.00	0	63	76.1	-26.9	0.0	0.0	67.1	0.1	-5.1	0.0	0.0	3.5	0.0	-0.0	10.6	-92.5
30	4889.07	5830.82	2.00	0	125	80.1	-22.9	0.0	0.0	67.1	0.3	1.6	0.0	0.0	2.6	0.0	-0.0	8.6	-94.5
31	4889.07	5830.82	2.00	0	250	79.1	-23.9	0.0	0.0	67.1	0.7	-0.6	0.0	0.0	4.4	0.0	-0.0	7.5	-95.5
32	4889.07	5830.82	2.00	0	500	76.0	-27.0	0.0	0.0	67.1	1.2	-1.9	0.0	0.0	4.7	0.0	-0.0	5.0	-98.1
33	4889.07	5830.82	2.00	0	1000	72.1	-30.9	0.0	0.0	67.1	2.3	-1.9	0.0	0.0	5.0	0.0	-0.0	-0.4	-103.4
34	4889.07	5830.82	2.00	0	2000	69.1	-33.9	0.0	0.0	67.1	6.2	-1.9	0.0	0.0	5.8	0.0	-0.0	-8.0	-111.0
35	4889.07	5830.82	2.00	0	4000	61.9	-41.1	0.0	0.0	67.1	20.9	-1.9	0.0	0.0	7.2	0.0	-0.0	-31.4	-134.4
36	4889.07	5830.82	2.00	0	8000	54.9	-48.1	0.0	0.0	67.1	74.7	-1.9	0.0	0.0	9.3	0.0	-0.0	-94.2	-197.2
37	4812.43	5757.63	2.00	1	1000	67.6	-35.4	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	5.0	0.0	1.0	-6.1	-109.1
38	4812.43	5757.63	2.00	1	2000	64.6	-38.4	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	5.4	0.0	1.0	-13.4	-116.4
39	4812.43	5757.63	2.00	1	4000	57.4	-45.6	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	6.3	0.0	1.0	-36.6	-139.6
40	4812.43	5757.63	2.00	1	8000	50.4	-52.6	0.0	0.0	67.3	76.2	-2.0	0.0	0.0	7.9	0.0	1.0	-100.0	-203.0
41	4854.62	5821.78	2.00	1	2000	65.9	-37.1	0.0	0.0	68.0	6.8	-2.2	0.0	0.0	0.0	0.0	1.0	-7.8	-110.8
42	4854.62	5821.78	2.00	1	4000	58.7	-44.3	0.0	0.0	68.0	23.2	-2.2	0.0	0.0	0.0	0.0	1.0	-31.4	-134.4
43	4854.62	5821.78	2.00	1	8000	51.7	-51.3	0.0	0.0	68.0	82.8	-2.2	0.0	0.0	0.0	0.0	1.0	-98.0	-201.0
44	4827.26	5698.34	2.00	1	1000	70.3	-32.7	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	5.0	0.0	1.0	-3.3	-106.4
45	4827.26	5698.34	2.00	1	2000	67.3	-35.7	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	5.4	0.0	1.0	-10.6	-113.6
46	4827.26	5698.34	2.00	1	4000	60.1	-42.9	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	6.3	0.0	1.0	-33.8	-136.9
47	4827.26	5698.34	2.00	1	8000	53.1	-49.9	0.0	0.0	67.3	76.2	-2.0	0.0	0.0	7.9	0.0	1.0	-97.2	-200.2
48	4821.78	5714.43	2.00	1	1000	66.4	-36.6	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	5.0	0.0	1.0	-7.2	-110.2

Line Source, ISO 9613, Name: "Finished Compost Trucks", ID: "S12"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
49	4821.78	5714.43	2.00	1	2000	63.4	-39.6	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	5.4	0.0	1.0	-14.5	-117.5
50	4821.78	5714.43	2.00	1	4000	56.2	-46.8	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	6.3	0.0	1.0	-37.7	-140.7
51	4821.78	5714.43	2.00	1	8000	49.2	-53.8	0.0	0.0	67.3	76.3	-2.0	0.0	0.0	7.8	0.0	1.0	-101.1	-204.1
52	4814.55	5735.67	2.00	1	1000	72.0	-31.1	0.0	0.0	67.3	2.4	-2.0	0.0	0.0	5.0	0.0	1.0	-1.7	-104.8
53	4814.55	5735.67	2.00	1	2000	69.0	-34.1	0.0	0.0	67.3	6.3	-2.0	0.0	0.0	5.3	0.0	1.0	-9.0	-112.0
54	4814.55	5735.67	2.00	1	4000	61.8	-41.3	0.0	0.0	67.3	21.4	-2.0	0.0	0.0	6.2	0.0	1.0	-32.2	-135.2
55	4814.55	5735.67	2.00	1	8000	54.8	-48.3	0.0	0.0	67.3	76.5	-2.0	0.0	0.0	7.6	0.0	1.0	-95.7	-198.7

Line Source, ISO 9613, Name: "Water Truck", ID: "S10"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	5010.78	5885.59	2.00	0	32	78.8	-24.2	0.0	0.0	68.8	0.0	-5.2	0.0	0.0	3.3	0.0	-0.0	12.0	-91.0
2	5010.78	5885.59	2.00	0	63	82.0	-21.0	0.0	0.0	68.8	0.1	-5.2	0.0	0.0	3.8	0.0	-0.0	14.6	-88.4
3	5010.78	5885.59	2.00	0	125	86.0	-17.0	0.0	0.0	68.8	0.3	1.3	0.0	0.0	3.1	0.0	-0.0	12.6	-90.4
4	5010.78	5885.59	2.00	0	250	85.0	-18.0	0.0	0.0	68.8	0.8	-1.0	0.0	0.0	4.5	0.0	-0.0	11.9	-91.1
5	5010.78	5885.59	2.00	0	500	81.9	-21.1	0.0	0.0	68.8	1.5	-2.4	0.0	0.0	4.8	0.0	-0.0	9.2	-93.8
6	5010.78	5885.59	2.00	0	1000	78.0	-25.0	0.0	0.0	68.8	2.8	-2.4	0.0	0.0	5.1	0.0	-0.0	3.7	-99.3
7	5010.78	5885.59	2.00	0	2000	75.0	-28.0	0.0	0.0	68.8	7.5	-2.4	0.0	0.0	5.6	0.0	-0.0	-4.4	-107.4
8	5010.78	5885.59	2.00	0	4000	67.8	-35.2	0.0	0.0	68.8	25.3	-2.4	0.0	0.0	6.3	0.0	-0.0	-30.2	-133.2
9	5010.78	5885.59	2.00	0	8000	60.8	-42.2	0.0	0.0	68.8	90.3	-2.4	0.0	0.0	7.5	0.0	-0.0	-103.4	-206.4
10	5034.21	5931.62	2.00	0	32	75.5	-27.5	0.0	0.0	69.2	0.0	-5.3	0.0	0.0	2.1	0.0	-0.0	9.4	-93.6
11	5034.21	5931.62	2.00	0	63	78.7	-24.3	0.0	0.0	69.2	0.1	-5.3	0.0	0.0	2.4	0.0	-0.0	12.3	-90.7
12	5034.21	5931.62	2.00	0	125	82.7	-20.3	0.0	0.0	69.2	0.3	1.2	0.0	0.0	2.0	0.0	-0.0	10.0	-93.0
13	5034.21	5931.62	2.00	0	250	81.7	-21.3	0.0	0.0	69.2	0.9	-1.1	0.0	0.0	3.3	0.0	-0.0	9.5	-93.6
14	5034.21	5931.62	2.00	0	500	78.6	-24.4	0.0	0.0	69.2	1.6	-2.5	0.0	0.0	3.8	0.0	-0.0	6.5	-96.5
15	5034.21	5931.62	2.00	0	1000	74.7	-28.3	0.0	0.0	69.2	3.0	-2.5	0.0	0.0	4.2	0.0	-0.0	0.8	-102.3
16	5034.21	5931.62	2.00	0	2000	71.7	-31.3	0.0	0.0	69.2	7.9	-2.5	0.0	0.0	4.6	0.0	-0.0	-7.5	-110.5
17	5034.21	5931.62	2.00	0	4000	64.5	-38.5	0.0	0.0	69.2	26.7	-2.5	0.0	0.0	4.9	0.0	-0.0	-33.8	-136.8
18	5034.21	5931.62	2.00	0	8000	57.5	-45.5	0.0	0.0	69.2	95.3	-2.5	0.0	0.0	5.3	0.0	-0.0	-109.7	-212.8
19	5042.31	5947.53	2.00	0	32	64.6	-38.4	0.0	0.0	69.4	0.0	-5.3	0.0	0.0	1.8	0.0	-0.0	-1.2	-104.3
20	5042.31	5947.53	2.00	0	63	67.8	-35.2	0.0	0.0	69.4	0.1	-5.3	0.0	0.0	1.8	0.0	-0.0	1.9	-101.1
21	5042.31	5947.53	2.00	0	125	71.8	-31.2	0.0	0.0	69.4	0.3	1.2	0.0	0.0	1.1	0.0	-0.0	-0.2	-103.2
22	5042.31	5947.53	2.00	0	250	70.8	-32.2	0.0	0.0	69.4	0.9	-1.1	0.0	0.0	1.8	0.0	-0.0	-0.1	-103.1
23	5042.31	5947.53	2.00	0	500	67.7	-35.3	0.0	0.0	69.4	1.6	-2.5	0.0	0.0	1.8	0.0	-0.0	-2.5	-105.5
24	5042.31	5947.53	2.00	0	1000	63.8	-39.2	0.0	0.0	69.4	3.0	-2.5	0.0	0.0	1.8	0.0	-0.0	-7.9	-110.9
25	5042.31	5947.53	2.00	0	2000	60.8	-42.2	0.0	0.0	69.4	8.0	-2.5	0.0	0.0	1.8	0.0	-0.0	-15.9	-118.9
26	5042.31	5947.53	2.00	0	4000	53.6	-49.4	0.0	0.0	69.4	27.2	-2.5	0.0	0.0	1.9	0.0	-0.0	-42.3	-145.3
27	5042.31	5947.53	2.00	0	8000	46.6	-56.4	0.0	0.0	69.4	97.0	-2.5	0.0	0.0	2.0	0.0	-0.0	-119.3	-222.3
28	5048.78	5960.24	2.00	0	32	74.4	-28.6	0.0	0.0	69.5	0.0	-5.3	0.0	0.0	0.0	0.0	-0.0	10.2	-92.8
29	5048.78	5960.24	2.00	0	63	77.6	-25.4	0.0	0.0	69.5	0.1	-5.3	0.0	0.0	0.0	0.0	-0.0	13.3	-89.7
30	5048.78	5960.24	2.00	0	125	81.6	-21.4	0.0	0.0	69.5	0.4	1.2	0.0	0.0	0.0	0.0	-0.0	10.6	-92.4
31	5048.78	5960.24	2.00	0	250	80.6	-22.4	0.0	0.0	69.5	0.9	-1.2	0.0	0.0	0.0	0.0	-0.0	11.4	-91.6
32	5048.78	5960.24	2.00	0	500	77.5	-25.5	0.0	0.0	69.5	1.6	-2.5	0.0	0.0	0.0	0.0	-0.0	9.0	-94.0
33	5048.78	5960.24	2.00	0	1000	73.6	-29.4	0.0	0.0	69.5	3.1	-2.5	0.0	0.0	0.0	0.0	-0.0	3.6	-99.4
34	5048.78	5960.24	2.00	0	2000	70.6	-32.4	0.0	0.0	69.5	8.1	-2.5	0.0	0.0	0.0	0.0	-0.0	-4.5	-107.5
35	5048.78	5960.24	2.00	0	4000	63.4	-39.6	0.0	0.0	69.5	27.6	-2.5	0.0	0.0	0.0	0.0	-0.0	-31.1	-134.1
36	5048.78	5960.24	2.00	0	8000	56.4	-46.6	0.0	0.0	69.5	98.4	-2.5	0.0	0.0	0.0	0.0	-0.0	-108.9	-211.9

APPENDIX E

Electronic Modelling Files
This file shall be considered as a confidential technical file and its disclosure could harm the P.E.S. Stacks Inc. business interest.


ACME Othertown
s.9 EPA
Electronic Modelling Files